REPORT RESUMES

ED 003 554 56

IMPROVING LANGUAGE ARTS OF BILINGUALS THROUGH AUDIOVISUAL MEANS.

BY- CLINE, MARION, JR.

NEW MEXICO HIGHLANDS UNIV., LAS VEGAS

REPORT NUMBER NDEA-VIIA-198 PUB DATE 61

GRANT OEG-07029043

EDRS PRICE MF-$0.18 HC-$4.00 100P.

DESCRIPTORS- *AUDIOVISUAL AIDS, GRADE 4, *CURRICULUM ENRICHMENT, *LANGUAGE ARTS, ACADEMIC ACHIEVEMENT, *BILINGUAL STUDENTS, *INSTRUCTIONAL IMPROVEMENT, LANGUAGE HANDICAPS, LAS VEGAS, NEW MEXICO

THIS IS AN EVALUATION OF THE USE OF AUDIOVISUAL AIDS WITH BILINGUAL SPANISH-SPEAKING CHILDREN OF NORTHERN NEW MEXICO. THE SCHOOL YEARS OF 1959-61 WERE SPENT IN SEEKING THE MEANS OF OVERCOMING THE LANGUAGE HANDICAPS OF BILINGUAL PUPILS BY THE USE OF AUDIOVISUAL AIDS. TWELVE GROUPS WERE USED, 6 EXPERIMENTAL AND 6 CONTROL GROUPS. DURING 1/2 HOUR A DAY FOR A TOTAL OF 2 1/2 HOURS PER WEEK, THE EXPERIMENTAL GROUPS WERE TAUGHT WITH ALL AVAILABLE VISUAL AND AUDIO AIDS SUITED TO THE FOURTH-GRADE CURRICULUM. THE CONTROL GROUPS WERE INSTRUCTED WITHOUT SPECIAL ATTENTION TO AUDIOVISUALS. TEACHERS SELECTED FOR THE PROJECT HAD PARTICIPATED IN A SUMMER WORKSHOP ON AUDIOVISUAL AIDS. ACHIEVEMENT TESTS AND ORAL READING TESTS WERE ADMINISTERED TO BOTH GROUPS. ON MOST OF THE VARIABLES, THE EXPERIMENTAL GROUPS ACHIEVED SIGNIFICANTLY BETTER RESULTS THAN THE CONTROL GROUPS. A NUMBER OF SIGNIFICANT RECOMMENDATIONS FOR RESEARCH ON PREPARATION AND USE OF AUDIOVISUAL AIDS ARE INCLUDED IN THE REPORT. (JC)

198

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

IMPROVING LANGUAGE ARTS OF BILINGUALS THROUGH AUDIOVISUAL MEANS

MARION CLINE JR
PRINCIPAL INVESTIGATOR

NEW MEXICO
1912 1962
Golden Anniversary

TITLE SEVEN PROJECT NO. 198
NATIONAL DEFENSE EDUCATION ACT OF 1958
Grant No. 07029043

New Mexico Highlands University

The research reported herein was
supported by a grant from the
U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION

IMPROVING LANGUAGE ARTS OF BILINGUALS THROUGH AUDIOVISUAL MEANS;

Bridging the Gap Between the Speaking, Listening, Reading, and Writing Vocabularies of Spanish-English Speaking and English Speaking Children in New Mexico Through Effective Use of Audiovisual Education Materials and Procedures

by

MARION CLINE, JR., Ed. D.

Project Supervisor and Principal Investigator

NATIONAL DEFENSE EDUCATION ACT OF 1958
TITLE VII, PROPOSAL NO. 198
U. S. OFFICE OF EDUCATION
GRANT NO. 07029043

Department of Education
New Mexico Highlands University

ACKNOWLEDGMENTS

Certain statistics for this study were treated by the Western Data Processing Center.

I wish to thank all those who aided in the successful completion of the project. Particular acknowledgment is due the Boards of Education and Superintendents who agreed to participate, and to the Santa Fe County School System for the use of office facilities. Many thanks are due the experimental group teachers and the children who willingly "tried out" the suggested innovations in their classrooms, and to the teachers and students who served in the vital capacity of controls.

Among the many who contributed their able assistance so willingly are the following to whom I extend my special appreciation: Dr. Horacio Ulibarri for professional advice; Dr. William McDonough for scoring services; Dr. Richard Bloomer for technical advice; Brother Jasper for assistance in the preparation of linear charts; Miss Ruby Wallace for editorial assistance; Mrs. Gladys Shaw and Mrs. Betty Cline for charting the statistical data and typing; Mr. John H. Montano, the graduate assistant; and the project consultants.

--M. C.

TABLE OF CONTENTS

Chapter		Page
	Introduction	i
I.	Statement of the Problem	1
II.	Process of the Study	6
III.	Interpretation of the Subjective Data	17
IV.	Interpretation of the Objective Data	25
V.	Findings and Implications for Education	50
	Index to Appendices	58
	Bibliography	59

IMPROVING LANGUAGE ARTS OF BILINGUALS THROUGH AUDIOVISUAL MEANS

INTRODUCTION

The accepted goal of public education in the United States has long been to furnish an equal educational opportunity to all American children regardless of their ethnic or economic backgrounds. Theoretically, public education has a carte blanche from the democratic ideology and American political institutions even to the point of legal requirements that American youth spend a specified number of years in school. The question arises as to whether or not "equal educational opportunity" should be defined within the limitations of attendance requirements and minimum facilities or if it should be defined as an opportunity for each individual to develop to the maximum of his potential. If the limited definition is accepted, Americans can justifiably feel a bit smug about the extent of the progress made in the achievement of the goal. However, acceptance of the latter definition necessitates the realization that there are many variables which deter the achievement of equal educational opportunity. An idealistic educational philosophy, required school attendance, and standardized facilities do not automatically counteract or compensate for individual differences, social class values, ethnic class values, and inadequate economic resources.

Special problems require specialized techniques whether or not those problems are peculiar to an individual, a group, a community, or a geographic or political region.

Paradoxically, it has been mass education that has made the American public and educators cognizant of the fact that equal facilities and equal time factors do not provide equal opportunity for all students to maximize potential abilities while at the same time it has created such a problem in terms of numbers of students that the provision of only such minimums has become difficult. However, many efforts are being made through educational research to define the factors which preclude equality of educational opportunity and to discover and develop techniques which will make such a goal more realistic. No longer are such problems considered to be the sole responsibility of the classroom teacher; it is becoming more generally recognized that the future national welfare is contingent upon the present investment of time and money required to find solutions to both individual and generic characteristics which create obstacles to the learning process.

New Mexico is a multi-lingual and multi-cultural state inhabited by a population of Anglo-American, Spanish, and Indian origins. These deep-rooted ethnic backgrounds manifest themselves to an important degree in the early elementary grades where many children have a serious language handicap. This existent trilingual situation is one of the major factors precluding equality of opportunity. The child's opportunity to reach a high level of achievement is hindered by his adherence to one culture while living within another. In actuality he is in a state of transition from a semi-Spanish or semi-Indian cultural orientation to a dominant Anglo-American culture. The bilingual is a marginal man. According to Ulibarri (1), "He is neither here nor there but inbetween."

Despite this "atomic age" of faster-than-sound travel and highly advanced spatial communication media, New Mexico has many isolated geographic areas, most of which are also economically depressed. This semi-isolation retards the necessary social intercourse and communication, particularly with the dominant Anglo-American element, which would allow for adequate social adaptation and its by-products. The current problems of the Spanish and Indian people of New Mexico, whether academic, economic, or social, can probably be largely attributed to the physical and social isolation of these people. The language factor, isolation, and economic depression combined with their status as a marginal group compound the problems of acculturation and assimilation of the New Mexican bilingual into the Anglo society.

Welfare programs have not alleviated the situation. Some even believe that such programs have only aggravated it and helped to perpetuate it. The most likely and plausible recourse for such cultural groups is that of education. Educational techniques developed for English-speaking products of an Anglo society have not adequately met the needs of children who come from such completely different backgrounds as those of the Indian and Spanish children in the Southwest. If these children are to be expected to participate as intelligent and productive members of an Anglicized social and economic society, methods of instruction adapted to their special needs must be developed.

Research and experience in the field of education have led to the development of what is known among educators as the Cone of Experience. In the gamut of experiences which a child may encounter the least retention of knowledge takes place from abstract verbalization. The greatest retention occurs from concrete situations in which the student is directly involved and in which he must exercise more of his physical senses of sight, hearing, etc. If abstraction presents a problem for the English-speaking child, it must present an infinitely greater problem for the child whose native language is not English but who must learn in an English-speaking, Anglo-oriented classroom. However, concrete situations are not always feasible in the classroom. The best substitute would be one which involved as many of the child's physical senses as possible. Audiovisual aids have proven to be advantageous in combating the problem of abstraction because they do require the utilization of such senses.

This study was proposed and conducted for the purpose of closing the educational gap between the bilingual and the English-speaking child through the use of an extensive audio-visual program. Audiovisual aids were selected as a promising method of closing the educational gap because their use minimizes the abstraction problem, and because any promising method of instruction which is adaptable to the needs of such marginal children should be studied if bilingual children are to be helped to reach the level of educational achievement of their Anglo contemporaries.

CHAPTER I

STATEMENT OF THE PROBLEM

The purpose of this study was to propose and to evaluate an approach toward the improvement of academic achievement of bilingual children, specifically, Spanish-speaking students of Northern New Mexico.

HYPOTHESIS

The premise on which this study was based was that there would be improvement in both instruction and learning through extensive use of audiovisual aids in the teaching of language arts to the large subcultural groups in New Mexico and the Southwest.

IMPORTANCE OF THE STUDY

In the Northeastern part of New Mexico where the study was conducted, some seventy per cent of the Spanish children come from homes where Spanish is the mother tongue. Research indicates that: 1) There is a deficiency in the usage of the English language by Spanish-English speaking children; 2) These children fail to reach the achievement level of their capacities; 3) The Spanish-English speaking child lags behind his Anglo contemporaries, most particularly at the fourth grade level; and 4) These discrepancies are due primarily to the inability of the Spanish-speaking child to comprehend the abstractions expressed in the English language.

New Mexico is a state that has grown and developed as a result of scientific and technological progress. Post war developments have brought about a radical change in the state's economy. No longer are young people returning to the agrarian society from which they came. The youth of New Mexico are becoming more aware of the economic independence awaiting them in industry and the professions within and outside the state. The state's progress cannot be maintained unless the bilingual can be removed from the welfare programs and become assimilated as a productive member of the industrialized Anglo part of New Mexico's population which is forcing the swing to industrialization.

At the current time, very little research is underway to help reduce the academic spread between actual achievement and potential capacities of bilinguals. Yet, only by closing or eliminating that spread can the bilingual fulfill his economic and emotional needs and be able to contribute more to the state's economy and progress. The existing spread can only be closed when adequate and specialized instructional methods are provided for bilinguals. Furthermore, future citizens will need to continue to reach even higher levels of educational achievement as the nation continues to grow and prosper. It becomes essential from the standpoint of the state and national economies to provide equal educational benefits for all students if they are to compete for and participate in a richer, fuller life. The term equal educational benefits must be interpreted as meaning an opportunity for every student to develop to the maximum of his capacities.

This study was designed to bridge the educational gap between bilinguals and Anglos with appropriate suggestions which would provide bilinguals, Spanish or otherwise, with a greater opportunity for developing their talents through the use of more effective educational media. Such an opportunity will subsequently allow the bilingual to meet his own needs and to become a participant rather than a spectator in the progress, prosperity, and growth of the nation and the state.

DELIMITATIONS

The geographical area of the study was limited to the two neighboring county areas of San Miguel and Mora counties in Northeastern New Mexico. Six control groups and six experimental groups were selected to test the major thesis. It must be assumed that the students in the area of the study and the classroom situations are typical of the Northern New Mexico elementary schools in which a bilingual situation exists.

METHODS OF PROCEDURE AND ORGANIZATION OF THE STUDY

An application was made to the Commissioner of Education, U. S. Department of Health, Education, and Welfare for funds to support a research project under the provisions of Title Seven of the National Defense Education Act of 1953 (PL 85-864). The school years of 1959-61 were spent in seeking a means of overcoming the language handicap of bilingual pupils by the use of audiovisual aids. A total of 12 groups were used, six experimental and six control. During one-half hour a day for a total of two and one-half hours per week, the experimental groups were taught with all available visual and audio aids suited to the fourth grade curriculum. The control groups were instructed without any special attention being given to the use of audiovisual aids other than those normally used in the typical classroom situation. The experimental groups utilized films, filmstrips, records, slides, pictures, and other audiovisual materials. Special emphasis was placed on the use of audiovisuals which correlated closely with the textbook series in use. The one-half hour block of time was used daily to concentrate on vocabulary development and reading comprehension.

The teachers selected to participate in the project were not required to have had any previous training with respect to the use of audiovisual aids as a teaching technique. Their training was carried out in 1959 in a summer workshop held on the campus of the grantee institution. During the workshop, the teachers were instructed in the selection of materials and in the principles for proper utilization of the audiovisual tools. During the summer of 1960, the tentative results were studied by the principal investigator, the graduate assistant and the teachers involved. A few administrative changes were made primarily in the area of suggestions made by the participating teachers as to the distribution of supplies since transportation of supplies presented quite a problem because of distance and isolation.

Achievement tests and oral reading tests were administered as a means of evaluating quantitatively the augmentation needed for bilingual children. A more complete discussion of procedures and methods follows in Chapter II. An analysis of the subjective evaluations and the statistical data may be found in Chapters III and IV. The summary, conclusions, the implications for the profession and the recommendations of the study are presented in Chapter V.

CHAPTER II

PROCESS OF THE STUDY

__Duration of the Study__. As outlined in the proposal, the expected duration of the research project was to extend from the fall of 1959 to the spring of 1961. This time was spent in the use of an extensive audiovisual aids program in order to test the hypothesis. This period of time involved two school years and two fourth grade groups of students.

__Initiation of the Study__. Upon approval of the grant, the principal investigator proceeded immediately in the selection of groups, teachers, and equipment sources. Financial arrangements were finalized for equipment, teachers, transportation, etc. Conferences were held to orient teachers, interested superintendents, and interested members of boards of education. Office procedures regarding record keeping and the distribution of supplies and equipment were set up; arrangements were made for frequent school visitations by the principal investigator or the graduate assistant. Finally, a testing schedule was arranged and the study began with the administration of the pretest.

__Selection of Teachers__. Teachers who were selected to participate in the project were not required to have had any previous course work in the selection and use of audiovisual aids. If they had had such work and/or experience, it would have been very beneficial to the project; but no such prerequisite was established because of the many other variables bound to affect the progress of the study such as socio-cultural differences; average intelligence differences; school, classroom, and community size; the isolation or the proximity of the community to a town or city; the availability of television; and the human factor which could not be eliminated from the implementation of the program. Twelve teachers who were teaching at the fourth grade level during the school year of 1959-60 were chosen to test the hypothesis. Six of those teachers and their classes were to comprise the experimental division and the remaining six and their groups were to make up the control division. Those teachers lacking the necessary experience in the use of audiovisual aids were given personal assistance when needed in the use and operation of the equipment by the principal investigator.

Selection of the Groups. The groups that were to participate in the project were selected on a subjective basis which seemed to give some equality on most of the variables mentioned previously. The major purpose for using this method of selection was to conduct the research project on a basis that would closely approximate the typical classroom situation of rural schools in Northern New Mexico. Any positive results of the study would already be adapted to the typical classroom situation and would have practical utility. The geographic location of the school was an important consideration if materials were to be circulated with any degree of efficiency. The willingness of the school to cooperate was a decisive factor. The schools selected were located in San Miguel and Mora Counties in Northern New Mexico. Since the study was to evaluate the progress in language arts when normal classroom situations were supplemented with audiovisual equipment and materials, groups were matched as nearly as possible in each location by class size, the teacher's background and experiences, and the educational background of the children. An attempt was made to keep the groups as closely matched as possible in such factors as would be found in a normal rural classroom in the geographical area of the state where the study was conducted. No school was selected which did not have both fourth and fifth grades. Unfortunately, prior to the beginning of the second year of the study, two superintendents had transferred their fifth grades as classes into other elementary schools. The schools and groups were designated as experimental or control by chance and are opposite each other as listed below:

FOURTH GRADES

Experimental	Control
North Public School Town of Las Vegas, New Mexico	South Public School Town of Las Vegas, New Mexico
Commerce Street School City of Las Vegas, New Mexico	Gallinas Street School City of Las Vegas, New Mexico
Villanueva School Villanueva, New Mexico	Ribera School Ribera, New Mexico

West Pecos School Pecos, New Mexico	East Pecos School Pecos, New Mexico
Wagon Mound School Wagon Mound, New Mexico	Ocate School Ocate, New Mexico
Mora School Mora, New Mexico	Holman School Holman, New Mexico

FIFTH GRADES

Experimental	Control
North Public School Town of Las Vegas, New Mexico	South Public School Town of Las Vegas, New Mexico
Douglas School City of Las Vegas, New Mexico	Paul D. Henry School City of Las Vegas, New Mexico
Villanueva School Villanueva, New Mexico	Ribera School Ribera, New Mexico
West Pecos School Pecos, New Mexico	East Pecos School Pecos, New Mexico
Wagon Mound School Wagon Mound, New Mexico	Ocate School Ocate, New Mexico
Mora School Mora, New Mexico	Holman School Holman, New Mexico

A total of 14 different schools were involved because Commerce Street School and Gallinas Street School had only four grades during the second year of the study. The first year fourth graders moved from these schools to Douglas School and Paul D. Henry School when they entered the fifth grade. A total of 289 fourth grade students were involved at the beginning of the study, 151 experimental and 138 control. These students were followed through their fifth grade year. Data were also collected on the new fourth grades during the second year of the project in the hope that continuation of the study of a repetitive nature could be made subsequently in all of the areas studied. During the second year there were 142 students in the experimental fourth grade groups and 137 in the control fourth grade groups. The fourth grade groups during the second year of the study attended the same schools as designated on the listing above for the beginning fourth grade groups.

The fourth graders involved in the study all were in classes which used one of the three state adopted programs; all used one of two of the state adopted programs except one school; three-fourths of the schools used the same textbook series.

EQUIPMENT AND MATERIALS

The six experimental groups utilized five pieces of audiovisual equipment. Each experimental group had at its disposal a 16mm movie projector, a 35mm filmstrip and slide projector, a tape recorder, an opaque projector, and a three-speed record player. All equipment was obtained for use during the course of the study on lease from the distributors. The criteria used in the selection of equipment were the availability of materials, the location of the distributors, the adaptability of the classrooms to the use of such equipment, the expediency with which repairs could be made, and the fact that these particular pieces of equipment had been tested and proven as being practical for classroom use. The use of educational television was debated because New Mexico does have an educational television channel and some schools are utilizing its televised classes in their courses of study. The locality of some of the schools involved in this study made it impractical to include televised classes because of poor reception in the area. Too, it was deemed inadvisable to influence the results of the study with a media as new and unproven as television.

The materials used with the equipment noted above were supplied by the principal investigator from project funds except those for the opaque projector. Films were obtained on a rental basis; filmstrips, slides, tapes, and flats were either purchased or secured free of charge. All materials purchased from the project funds were left with the grantee institution when the study was completed. It was the intention of the principal investigator that the materials would become a nucleus for a teaching materials center for use by schools in the area. Some of the teachers in charge of the experimental groups supplied personal materials such as materials suited to the opaque projector. This type of material was difficult to obtain commercially. The materials were retained by the teachers for at least a week's use in order to assure the availability of such materials during the daily half-hour periods allotted as the experimental time period. A list of the materials used appears in the Appendix.

TESTING

In order to subject the project results to statistical treatment, it became necessary to administer a test that would give quantitative results. The test selected for this purpose was the California Achievement Test, Complete Battery, Series E, Grades 4, 5, 6, Forms X and W. The X forms were administered at the beginning of the 1959 school year and the W forms were administered at the end of the school year during the month of May. This supplied the investigator with achievement results for an eight month period for the fourth grade for the 1959-60 school year. During the second year, Forms Y and Z were administered following the same pattern with respect to the time of administration. This provided similar achievement results for the 1960-61 school year for the new fourth grade group and for the fifth grade group. An accumulated record of achievement was then available for the division that had been exposed to audiovisuals both in the fourth and the fifth grades. Statistical results appear in Chapter IV. Graphic illustrations of the statistical results are included in the Appendix.

In addition to the California Achievement Tests, the students of both divisions were administered selected portions of the Gilmore Reading Test. The voices of these students were recorded for purposes of evaluating improvement in diction, enunciation, and in the loss of the inflection which characterizes the Spanish sing-song form of speech. These tapes were evaluated by members of the speech department at New Mexico Highlands University. The Gilmore Reading Test not only provided a means of evaluating speech improvement, but it also gave an indication of improvement by grade placement, if any, in oral reading ability. The evaluations of this test appear in Chapter III.

SUPERVISION

During the first three months of the project, every effort was made to establish rapport with the children as well as the teachers participating in the study. The project's principal investigator spent a great deal of time in the classrooms actually teaching in order to demonstrate proper possible uses of the tools and materials.

The principal investigator or the graduate assistant observed the operation and progress of the experiment bimonthly. All experimental groups were visited more frequently during the fall of each year of the program in order to minimize the initial problems of getting the study underway.

DISTRIBUTION OF EQUIPMENT AND MATERIALS

The beginning distribution of audiovisual equipment was made in the fall to each of the experimental groups. The transportation problem consumed a great amount of time and presented a real problem during the early weeks of the project.

Some materials rented for a two-week period were not utilized in all six experimental rooms because of the inability to move them to new locations for use.

The original agreement with the grantee institution provided for one-fifth course load time for the principal investigator to devote to the project as the institution's contribution. During six of eight quarters, the principal investigator taught a full course load, and during three of the six quarters, taught an off-campus class. This prevented his having sufficient time to transport personally materials where and when they were needed. This problem was overcome through the aid of interested parties traveling to the semi-isolated mountainous locations such as the milkman, the bread man, and teachers in Las Vegas who traveled daily to the experimental schools where they taught. Their willingness to provide these services expedited distribution of materials. Once this problem was solved, the materials required by the teachers in the experimental groups were delivered to them about every seven to ten days. A record of materials used and the length of time they were kept by each teacher was kept in the office of the principal investigator. No such individual records of materials for each group have been included in this report because the supplies were so varied and so numerous for each group; a total list of the various materials used in the project is included in the Appendix.

CONFERENCES

A total of four conferences were held with the teachers of the experimental groups and any other personnel interested in the investigation. The first conference was held in the fall of 1959. This initial meeting was primarily for the purposes of outlining the general approach to the program, determining the type of materials needed, defining the duties and required reports, and discussing the need for the project and the importance of controls. The conference was composed of the teachers conducting the experimental groups. Some of the teachers in charge of the control groups were interested in obtaining information as to their procedures as controls and also attended along with four of the superintendents of the school systems included in the project. Suggestions for the selection and distribution of materials were encouraged and discussed with the conference attendants. Visitations to the individual experimental classrooms followed this orientation as outlined under the section on supervision.

At the end of the 1959-60 school year an all day meeting was held for the purpose of evaluating the first year's progress. During the conference, suggestions were made to the effect that materials should be on hand at the beginning of the 1960-61 school year, that teachers new to the experimental division should be allowed sufficient time to practice the manipulation of the mechanical equipment before the beginning of school, and that the teachers in the project should request the kind and type of materials needed far enough in advance to insure that such materials would be obtained for them. All suggestions were carried out by the principal investigator or the graduate research assistant. The principal investigator made suggestions regarding the transportation of supplies, the importance of releasing assigned supplies on schedule, and the need for keeping equipment in good operating condition.

In the fall of 1960, prior to the beginning of school, the experimental teachers met again to ask for needed assistance and to present lists of materials deemed necessary for the next two or three months. Teachers new to the experimental division were briefed on the use of the equipment and the procedures to be followed in requesting and circulating supplies.

A final conference was held at the end of the project during which subjective evaluations of the project were requested and received from the participating teachers. These evaluations are discussed in Chapter III and the inferences drawn are included in the final chapter.

CHAPTER III

INTERPRETATION OF THE SUBJECTIVE DATA

At approximately the same times the California Achievement Tests were administered, all the student participants' voices were taped as they read the basic paragraph of the Gilmore Oral Reading Test, Form A.

The evaluation of the recordings was made by the Chairman of the grantee institution's Speech and Drama Department and two visiting lecturers. An attempt was made to get the disinterested listening committee to rate the beginning and ending tapes on a five point scale; but the handling of over 500 two-minute readings proved too time consuming, so the evaluation committee submitted a subjective evaluation of the experimental and the control groups by schools. The principal investigator compiled their ratings into a composite rating by groups.

TAPE EVALUATIONS

The following observations were made by individual judges while listening to two sequences of elementary reading, the September, 1959, test and the spring, 1961, test, involving the same experimental and control groups in both the fourth and fifth grades. Comments concerning the experimental groups indicated the committee's opinion of improvement or lack of improvement as compared with their controls.

Mora. No noticeable improvement in the sounds of English or in word recognition was found. "One student showed promise of becoming a very good reader on the first tape--didn't come through on the second."

Commerce. A much higher reading ability on the fourth grade level than the group from North Public was reported. The slower readers made average improvement, and the better readers remained about the same, except for better phrasing. "Best of the bunch."

North Public. There was less than average to good improvement reported by the committee members. In general all were quite below grade expectancy when compared with the control in the handling of the English sounds.

Pecos. In the committee's judgment there was good improvement with a tendency noted for the better readers to read too rapidly for good enunciation.

Villanueva. There was average to good improvement reported. The Spanish rhythm seemed to increase during the reading. As the reading speed increased the rhythm problem became more noticeable. At least two examples of infantile speech patterns were overcome.

Wagon Mound. The committee found at least average improvement in speed of reading and articulation. The students were better readers than the controls on both grade levels.

General Observations. The committee felt there was no way to measure the effectiveness of the teacher in the experiment. Even though all devices, visual and otherwise, remained the same in each reading test, the teacher was not a constant; this seemed to be the key to the speed of improvement. The graduate assistant, a Spanish-speaking individual (as were all the teachers of experimental groups) who received his schooling in the project area, isolated teacher influence in a rather unusual manner. He was able to tell the teacher and the location of the student by merely listening a few minutes to tapes of any voice taken at random. He explained this phenomenon by saying, "Just listen for the one or two unusual pronunciations or speech patterns you know to belong to a particular teacher, and her students will mimic her."

One teacher insisted the whole thing was not worth the money invested nor the time needed to carry out all the suggestions. The committee felt this teacher was unable to hear his own speech imperfections, therefore, was unable to detect any improvement by his students.

One expected result was that the girls were more advanced than the boys in nearly every group. This result was anticipated because it has been found that females of the Spanish-speaking culture with which the study was concerned not only mature earlier than those in the

Anglo-American culture, but also are consistently better than Spanish-American boys in the lingual field. This finding seems to be especially prevalent in lower socio-economic areas.(2) As a matter of fact, one committee member, commenting on the results indicated by the tapes, stated, "My conclusion would be that I am not sure this proved anything that was not already known." The other committee members agreed this might be true but all agreed, too, that sufficient improvement had been shown by the tapes to substantiate that audiovisuals would be a practical device for use in the teaching of bilinguals, and to confirm the need for more imaginative, intensive work in the general area of teaching "Juan to read." It was clear the committee felt it was not enough to simply "believe" a particular method would work. Techniques should be tested and confirmed or disproved in terms of classroom utilization. Only through effective proof of their practicality will new techniques be accepted by the classroom teacher and school administrators. The committee members were agreed that the improvement indicated by the tapes warranted the use of audiovisuals in the teaching of bilinguals.

TEACHER EVALUATIONS

At the end of the second year of the project all the participating teachers of the experimental group wrote a subjective evaluation of the experiment. The individual reports were synthesized by the principal investigator.

It was the consensus of opinion of the participating teachers of the experimental groups that audiovisual aids most definitely aid in the learning processes of the bilingual child, because they make abstractions more concrete through vicarious experiences provided by the aids.

Assertions made by experimental teachers were as follows:

1. The total quality of retention was greatly enhanced. Quality, in this case, means the length of time a child retains an idea and the number of ideas retained.
2. Use of the tape recorder and record player increased the attention span, and it also seemed to have increased the amount of intensity with which the children listened. "It is very easy to hold the attention of the entire group for longer periods of time."
3. When viewing films and filmstrips for the ultimate purpose of building experiences vicariously, extracting meaning, etc., students began to view films with a more critical analysis, rather than for mere entertainment. "They have become interested

in new words and want to know their meanings."

4. Many of the films, filmstrips, records, tapes, and flats conveyed ideas of good moral values and character-building traits which are essential at the fourth and fifth grade levels.
5. Use of the tape recorder made the children and the teachers conscious of their own voices and motivated them to make an effort toward improvement of speech deficiencies. "...aids tremendously in speech development."
6. Ability to summarize a story or event was greatly augmented.
7. Audiovisual materials provided a media for common relationships among the students and increased class participation and cooperation in the all-school program. "Most of my students have learned to operate the equipment and feel very proud."
8. The project aroused greater interest in audiovisual aids in the schools where the experimental groups were located. Some of the teachers of the project were asked to act as audiovisual coordinators in their schools as a result of their participation.
9. Audiovisuals tended to motivate independent reading and increase reading comprehension. This was borne out in the analysis of the reading tapes, and, "My students became daily newspaper readers."

10. Accessibility to audiovisual equipment increased the interest of reluctant learners and their participation in class activities. Permission to use the audiovisual equipment proved useful in some disciplinary cases.

11. Teachers suggested a need for a newer media center for the dispersement of materials to the schools. "I certainly wish to thank you for the wonderful help you have given me and for the use of all the fine equipment that has been available. Hope we may keep it."

12. Audiovisual materials tended to coordinate all areas of subject matter. "I certainly am convinced that audiovisuals are a must in every classroom."

13. Audiovisual equipment and materials could be a great aid to beginning teachers. "I think the program has improved my teaching."

14. There seemed to have been improvement in learning by both slow and fast learners through the use of audiovisuals. "AV aids offer a common experience that forms a good basis for discussion and study."

15. School attendance improved and the children worked more contentedly.

16. The meager background of the students was enriched. "I found that the same experiences (as field trips) can be brought to the classroom."

17. Enriched the background of experiences which in turn improved comprehension in reading and improved ability of students to summarize. "It is amazing how children are stimulated to express what they think and how they feel toward their experiences."
18. Aided in developing the continuity of thought. "The children look forward to the next assignment."
19. Newspaper reading became a daily routine as a result of news films furnished on the project. "You'd be surprised how few of these children have a radio at home and rarely get to listen to news broadcasts."
20. Resulted in a better understanding of subject matter, and gave the students a sense of achievement.

Five out of six project teachers felt that the utilization of audiovisuals in the language arts field aided the instructional program in the language arts area and consequently the entire educational program.

CHAPTER IV

INTERPRETATION OF THE OBJECTIVE DATA

In September, 1959, the experimental and control groups were administered the complete battery of the California Achievement Tests for grades four, five, and six, series E, Form X. The tests were given by the regular classroom teachers with aid and assistance, where needed, being provided by the graduate research assistant or the principal investigator.

The answer sheets were collected and turned over to the Testing and Counseling Service of the grantee institution for machine scoring. The completed scores were compiled by schools and by experimental and control groups, and the answer sheets were returned to the teachers for inclusion in the students' permanent records.

In the spring of 1960, both experimental and control groups were administered Form W of the California Achievement Tests. Both groups who were entering the fifth grade in the fall of 1960 were given a different form of the California Achievement Tests, and the results were tabulated as had been done with the scores of the two previous tests. The experimental and control groups entering the fourth grade in 1960 were given the California Achievement Tests, Form W, and the results were handled in the same manner.

During the last week of April, 1961, the fourth and the fifth grades of both experimental and control groups were administered Form Z of the California Achievement Tests, and all the students' voices were again recorded for a subjective evaluation as had been done at all the other testing dates.

The pretest was given to all experimental and control groups between September 25 and October 1, 1959. In the spring of 1960, the tests were given in May with 8 months of instruction time out of a possible 10 months or one school year intervening between the tests.

In the fall of 1960, the new fourth-grade groups, both experimental and controls, as well as the fifth-grade groups were tested in September. In late April, 1961, all four groups were given final tests. The instruction time interval between these tests was 7 months out of a possible 10. The time lapse between the pretest in the fall of 1959 and the final test administered in the spring of 1961 was one and seven-tenths (1.7) school years.

The 1959,experimental fourth grade group contained 151 cases, and the control group was composed of 138 cases on which the principal investigator was able to gather complete data. The repetitive, 1960 fourth grade groups were composed of 142 cases in the experimental classes and 137 cases in the control classes.

When the data were subjected to analysis of variance, the results contained some peculiarities as a function of unequal cells, and the between-columns sums of squares were greater than the between-cells which indicated that analysis of variance was not the technique to use.

The mean differences were negligible at the pretest and final tests when standard error of the differences were computed. This was interpreted as possibly being caused by the normal progress which should take place as children advance through two years of schooling.

In the fall of 1959, none of the experimental groups had a greater mean than the control groups. (Table I) The mean differences in favor of the controls were not significant except in reading vocabulary which had a _t_ ratio of 2.51. This _t_ ratio was significant at the .05 level of confidence and approached the .01 level of confidence.

At the end of the experimental program in the spring of 1961, the mean differences in comprehension, total reading, mechanics of English, and arithmetic favored the experimental groups. (Table II) However, none were significant and only reading comprehension approached the .05 level of confidence with a _t_ ratio of 1.92. In vocabulary and total language, the experimental group achieved as well as the control group which had a higher mean grade placement on the beginning test. The controls achieved better in spelling but not significantly so.

It was decided a statistical tool must be employed which would take into consideration the gain in improvement compared

TABLE I

PRETEST MEANS, STANDARD DEVIATIONS, AND *t* RATIO COMPARISONS FOR EXPERIMENTAL AND CONTROL GROUPS (CALIFORNIA ACHIEVEMENT TEST,FORM X, SEPTEMBER, 1959)*

		Experimental N=151	Control N=138	*t*-ratio
READING				
Vocabulary	Mean	16.94	19.63	2.51**
	SD	7.57	10.25	
Comprehension	Mean	22.61	23.04	.35
	SD	8.58	11.63	
TOTAL	Mean	19.70	21.00	1.20
	SD	7.45	10.54	
LANGUAGE				
Mech. of Eng.	Mean	37.62	40.02	1.20
	SD	17.24	16.68	
Spelling	Mean	10.25	11.04	.80
	SD	8.14	8.48	
TOTAL	Mean	23.54	26.41	1.36
	SD	10.56	22.31	
ARITHMETIC				
TOTAL	Mean	15.19	15.60	.44
	SD	5.19	9.78	

*Raw Scores

**$t_{.05} = 1.96$

TABLE II

FINAL TEST MEANS, STANDARD DEVIATIONS, AND *t* RATIO COMPARISONS FOR EXPERIMENTAL AND CONTROL GROUPS (CALIFORNIA ACHIEVEMENT TEST, FORM Z, APRIL, 1961)*

		Experimental N=151	Control N=138	*t*-ratio
READING				
Vocabulary	Mean	28.87	28.93	.05**
	SD	9.72	10.10	
Comprehension	Mean	37.50	28.93	1.92
	SD	12.57	12.20	
TOTAL	Mean	32.72	31.50	1.05
	SD	10.74	9.04	
LANGUAGE				
Mech. of Eng.	Mean	64.41	62.93	.61
	SD	21.19	19.99	
Spelling	Mean	15.36	16.65	1.48
	SD	6.99	7.73	
TOTAL	Mean	39.05	39.56	.34
	SD	13.66	11.88	
ARITHMETIC				
TOTAL	Mean	28.87	27.52	1.38
	SD	9.08	7.54	

*Raw Scores

**$t_{.05} = 1.96$

with the expected gain during the period of study. Since a comparison of the significance of the improvement made by the two groups was desired, critical ratios were obtained by computing the significance of the difference between percentages of gain. (3) The per cent of expected gain was determined by obtaining the difference in the mean of the pretest scores and the final test means converted to grade placement. An expected gain between the beginning and the ending tests (fall,1959 and spring,1961) was 1.7, and this figure was used when computing the per cent of expected gain achieved by each group in each area with 1.7 equal to 100 per cent.

Comparisons of the change in grade placements and the percentages of expected gain for each variable tested are outlined below for the 1959 fourth-grade groups over the two-year period of the study.

Vocabulary. The first year, fourth grade, experimental group (1959) showed a gain of .3 year more than the controls in terms of mean grade placement and 18 per cent more improvement than the controls in terms of expected gain over the two-year period of the project. (Table III, page 31)

On the beginning test, the control group achieved .3 year more than the experimental in terms of mean grade placement, but by the end of the first year (May, 1960), the experimental group had reached a mean grade placement of 5.6 years compared to 5.0 years for the controls. (Chart I, Appendix) Chart I

TABLE III

THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEANS

COMPUTED BY PER CENT OF EXPECTED GAIN*

FIRST YEAR FOURTH GRADE (1959) - CALIFORNIA ACHIEVEMENT TEST

	EXPERIMENTAL N = 151			CONTROL N = 138			
Variable	Fall 1959 GP**	Spring 1961 GP	% of Expected Gain	Fall 1959 GP	Spring 1961 GP	% of Expected Gain	t Ratio***
READING							
Vocabulary	4.1	5.7	94	4.4	5.7	76	4.00
Comprehension	3.7	5.4	100	3.7	5.1	82	5.45
Total	4.9	5.6	100	4.1	5.4	76	6.40
LANGUAGE							
Mechanics of English	3.9	5.9	118	4.1	5.8	100	4.76
Spelling	4.3	5.7	82	4.6	6.0	82	.00
Total	4.1	5.8	100	4.4	5.9	88	4.38
ARITHMETIC							
Total	3.9	5.7	106	4.0	5.6	94	3.07

*Expected gain = Period from pretest to final test or 1.7 school years

**GP = Grade Placement

***$t_{.05}$ = 1.96

also shows that in September, at the beginning of the second year of the project (1960), the experimental group was still above the control group in terms of grade placement but had regressed somewhat over the summer vacation while the controls maintained their grade placement level achieved in May.

During the second year of the experiment, the rate of improvement leveled out for both groups and both dropped below expected gain during the year. In terms of percentage of expected gain (1.7 years equaling 100 per cent), the experimental group gained 94 per cent of expected as against the controls' gain of 76 per cent of expected, giving a difference of 18 per cent more improvement in favor of the experimental group though neither reached the mean grade placement for normal fifth graders. The difference between the percentages of expected gain was a _t_ of 4.00 which was significant beyond the .01 level of confidence in favor of the experimentals.

Comprehension. In comprehension, the experimental group (1959, fourth grades) improved .3 year more than the controls in terms of mean grade placement and 18 per cent more in terms of expected gain over the two-year period of the project. (Table III, page 31)

Both the experimental and the control groups started at the same level of grade placement, 3.7 years. By the end of the first year, May of 1960, the experimental group was ahead of the controls by .3 year. At the beginning of the second year of the study (September, 1960), both groups were even again in terms of grade placement. By the end of the second year (May, 1961), the experimentals had reached a mean grade placement of 5.4 years compared to the level of 5.1 years reached by the control group. (Chart II, Appendix)

The percentage of expected gain achieved by the experimental group was 100 compared to 82 per cent for the controls. The difference of 18 per cent improvement was a $\underline{t}$ of 5.45, significant at the .01 level of confidence in favor of the experimental group.

Total Reading. Over the two-year period of the project, the first year experimental fourth grades (1959) improved .4 year more than the controls in terms of mean grade placement and 24 per cent more in terms of expected gain. (Table III, page 31)

The experimental group began the first year of the study (September, 1959) .2 year below the grade placement level of the controls on the beginning test. At the end of the first year (May, 1960), the experimental group was .4 year ahead of the controls in grade placement and .3 year above the level of mean grade placement for the standardized test used. The controls at this juncture were .1 year below the expected grade placement level. At the beginning of the second year of the study (September, 1960), both groups were below the expected grade placement level, but the experimental group was still .1 year ahead of the controls. The achievement levels of both groups continued below the expected mean grade placement during the second year of the study though both groups reached a higher level by the end of the second year than that attained by the end of the first year. (Chart III, Appendix)

Over the entire period of the project,the experimental group achieved 100 per cent of expected gain compared with 76 per cent achieved by the control group. The difference of 24 per cent was a t of 6.40 which was very significant beyond the .01 level of confidence in favor of the experimental group.

Mechanics of English. The grade placement achieved by the 1959, fourth grade experimental group was .1 year more than that of the control group during the two years of the study. The experimental group also achieved 18 per cent more of expected gain than did the controls during the same two-year period. (Table III, page 31)

There was a difference of .2 year mean grade placement in favor of the control group on the beginning test administered in September of 1959. In May of 1960, the end of the first year of the experiment, there was a difference in mean grade placement of .2 year in favor of the experimental group. In September of 1960, there was a smaller difference of .1 year mean grade placement in favor of the experimental group. This same difference in mean grade placement was evident at the end of the second year, at which time the controls had reached 100 per cent of expected gain compared to 118 per cent of expected gain achieved by the experimentals. (Chart IV, Appendix and Table III, page 31) The difference between the percentages was a t of 4.76 which was significant beyond the .01 level of confidence in favor of the experimental group.

Spelling. There was no difference in the amount of gain achieved by the experimental or control groups of the beginning fourth grade over the two-year period of the study. Both improved 1.4 years in mean grade placement and achieved 82 per cent of the gain which could be expected over the period of the study (1.7 years). (Table III, page 31)

When tested in May of 1960, both groups had reached a mean grade placement of 5.0 years, .1 year above expected mean grade placement, though the control group had started .3 year ahead of the experimental group. Both groups began the second year of the study (September, 1960) at 5.0 years mean grade placement. In May of 1961, the experimental group had reached a mean grade placement of 5.7 years compared to 6.0 years for the controls, but both had gained 1.4 years in terms of mean grade placement and 82 per cent of the expected gain of 1.7 years in light of their beginning scores at the first of the project. (Chart V, Appendix and Table III, page 31)

Total Language. The difference in gain in mean grade placement for the first year fourth grade groups over the two years of the study was .2 year in favor of the experimental group. The difference in percentage of expected gain over the same period was 12 per cent in favor of the experimental group. (Table III, page 31)

At the beginning of the project (September, 1959), the control group was ahead in mean grade placement by .3 year. Both the experimental and the control groups were considerably above the mean grade placement of 4.9 years at the end of the first year of the project though 4.9 would be the normal level after a year of instruction; the control group had attained a grade placement of 5.2 years and the experimental group had reached a mean grade placement of 5.3 years or .1 year more than the controls. Both groups started the second year of the study at the same grade level as that achieved on the test administered in May of 1960. Near the middle of the second year, the mean grade placement levels of the two groups were about equal; and by the end of the study, the controls were ahead of the experimentals in grade placement (5.9 years compared to 5.8 years) but not in terms of gain in grade placement over the two-year period. The experimentals had by that time gained 100 per cent of the expected 1.7 years and the controls had gained 88 per cent of expected. (Table III, page 31 and Chart VI, Appendix)

The difference between the percentages of 12 per cent was a *t* of 4.38 which was significant beyond the .01 level of confidence in favor of the experimental group.

Arithmetic. The only arithmetic score used in the study was the total score. One of the hypotheses was that there would be general improvement of learning in all areas of study through improvement in the language arts area. Arithmetic, a purely academic subject, was used as a supplemental experiment to test this minor hypothesis. Since the results of arithmetic were pertinent to the study only in this light, it was not deemed necessary to report data on the sub-sections of this area.

There was a difference in total gain in arithmetic of .2 year in mean grade placement and 12 per cent of expected gain in favor of the experimental group over the two years. (Table III, page 31)

The control group started the first year of the study .1 year ahead of the experimental group on mean grade placement. Both groups ended the first year at the same level of grade placement, but the experimental group began the second year .1 year ahead of the controls and maintained this lead throughout the second year. (Chart VII, Appendix)

Based on an expected gain of 1.7 years, or 100 per cent, the experimental group gained 106 per cent of expected and the controls 94 per cent. The 12 per cent difference in expected gain was a t of 3.07, which was significant beyond the .01 level of confidence in favor of the experimental group.

SUMMARY

Over the two-year period of the project measured as 1.7 years of instruction, the experimental group reached expectancy or exceeded expectancy in comprehension, total reading, mechanics of English, and total language. Contrariwise, the control group reached expected 100 per cent gain in mechanics of English only.

In reading vocabulary, comprehension, total reading, total language, and mechanics of English, the experimental group's percentage of expected gain was significant beyond the .01 level of confidence. In spelling, both the experimental and the control groups achieved only 82 per cent of expected gain, which amounted to no significant difference.

Comparing arithmetic total scores, the experimental group achieved 106 per cent of expected gain as against the control group's achievement of 94 per cent of expected gain. This was significant beyond the .01 level of confidence.

The experimental group reached or exceeded expectancy in five of seven variables measured. In six of the seven variables measured, the t was significant byond the .01 level of confidence in favor of the experimental group.

THE REPETITIVE FOURTH GRADE

For comparative purposes, a repetitive fourth grade containing both experimental and control groups was included in the study during the 1960-61 school year. The same schools and the same teachers of fourth-grade classes were included in the project during the second year of the study. The repetitive fourth-grade groups were tested in September of 1960 and again in April, 1961. The interim instructional period was seven months, which is considered 100 per cent of expected gain in terms of mean grade placement achievement. The same variables were tested with the repetitive fourth as had been tested with the first year fourth grade. There were 142 students in the experimental fourth grade group and 137 students in the control fourth grade section during the 1960-61 school year.

During the second year, an attempt was made to keep most identified factors affecting the study parallel with conditions as prevailed during the first year of the study. The teacher, as mentioned previously, was not a constant during the first year; this was true to an even greater degree during the second year. By the beginning of the second year, the fourth grade experimental teachers had had a year's experience in using audiovisuals; they had become familiar with the equipment and its operation; and they had, more importantly, formed an opinion as to the value of using such aids for the teaching of their bilingual students. It was hoped, though, that the teacher-experience factor would help isolate and test the minor hypothesis that there would be improved teaching as a result of utilizing audiovisuals.

The data obtained for the repetitive fourth grade were subjected to the same statistical treatment as had been used for the first-year fourth grade. Comparisons of beginning and ending mean grade placements and percentages of expected gain achieved by both the experimental and the control groups in the repetitive fourth grade are made below.

Vocabulary. When tested in April, 1961, the repetitive fourth grade experimental group had improved .1 year more in mean grade placement than the control group and had achieved 14 per cent more improvement than the controls when compared to the expected gain of .7 year. (Table IV, page 41)

Starting from a mean grade placement of 4.2 years, or .3 year below the control group, the experimentals had reached a mean grade placement of 5.2 years by April of 1961 for a gain of one full year. The controls had moved from a beginning mean grade placement of 4.5 years to 5.4 years for a gain of .9 year. Both groups placed higher than expected at the beginning of the year and both achieved more than 100 per cent improvement in terms of expected gain. The experimentals achieved 143 per cent of expected as against 129 per cent for the controls. The difference of 14 per cent was a *t* of 1.94

TABLE IV

THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEANS

COMPUTED BY PER CENT OF EXPECTED GAIN*

REPETITIVE FOURTH GRADE (1960) - CALIFORNIA ACHIEVEMENT TEST

Variable	EXPERIMENTAL N = 142			CONTROL N = 137			
	Fall 1960 GP**	Spring 1961 GP	% of Expected Gain	Fall 1960 GP	Spring 1961 GP	% of Expected Gain	t Ratio***
READING							
Vocabulary	4.2	5.2	143	4.5	5.4	129	1.94
Comprehension	3.6	5.8	314	4.3	5.0	100	17.12
Total	3.9	5.5	229	4.5	5.2	100	13.30
LANGUAGE							
Mechanics of English	4.1	5.3	171	4.6	5.4	114	7.26
Spelling	4.3	4.9	86	4.5	5.1	86	.00
Total	4.2	5.1	129	4.5	5.3	114	2.69
ARITHMETIC							
Total	3.9	5.2	186	4.1	5.1	143	4.46

*Expected gain = Period from pretest to final test or .7 school year

**GP = Grade Placement

***$t_{.05}$ = 1.96

which approached significance at the .05 level of confidence. (1.96 was needed to be significant at the .05 level.) (Table IV, page 41 and Chart VIII, Appendix)

Comprehension. The largest gain made either year by any group was made by the repetitive fourth grade experimental group in comprehension. This group improved in mean grade placement 1.5 years more than the control group and achieved 214 per cent more in terms of the expected .7 year than did the control group. (Table IV, page 41)

The expected mean grade placement for both groups when tested at the beginning of the 1960-61 school year was 4.1 years. The control group started at 4.3 years or .2 year ahead of the expected; the experimental group started at 3.6 years or .5 year below expected giving a span of .7 year mean grade placement between the two groups in favor of the controls. At the end of the study, the experimentals surpassed the controls in mean grade placement by .8 year having reached a level of 5.8 years compared to 5.0 for the controls. (Chart IX, Appendix) In total gain, the experimentals improved 2.2 years in mean grade placement or 314 per cent; the controls improved .7 year or 100 per cent. The difference of 214 per cent was a t of 17.12 which was critical beyond the .01 level of confidence in favor of the experimentals.

Total Reading. The final mean grade placement for the repetitive fourth grade in total reading favored the experimentals by .9 year or 129 per cent in terms of expected gain.

The beginning mean grade placement favored the controls by .6 year. The experimentals had a beginning mean grade placement of 3.9 years compared to 4.5 for the controls. The controls started .4 year above the expected mean grade placement, but the experimentals started .2 year below it. (Chart X, Appendix)

On the final test, the experimentals had reached a mean grade placement of 5.5 for 229 per cent of expected gain; the controls had moved to a mean grade placement of 5.2 years or 100 per cent of expected gain. The difference in improvement measured in terms of expected gain was 129 per cent in favor of the experimentals which was a $\underline{t}$ of 13.30 and was significant beyond the .01 level of confidence. (Table IV, page 41)

Mechanics of English. A gain of 1.2 years in mean grade placement made by the repetitive fourth grade experimentals gave them .4 year more improvement than that made by the control group over the 1960-61 school year. In percentage of expected gain, the experimentals achieved 57 per cent more than did the controls. (Table IV, page 41)

At the end of the year, the controls were .1 year ahead of the experimentals, but the controls started .5 year ahead of the experimentals on the beginning test. Both groups ended the study well above the expected grade placement, the controls at 5.4 years and the experimental group at 5.3 years compared to the expected of 4.8 years. (Chart XI, Appendix)

During the year the experimental group improved 171 per cent; the control group improved 114 per cent. The difference of 57 per cent was a t of 7.26 which was significant beyond the .01 level of confidence in favor of the experimental group.

Spelling. Again during 1960 and 1961 with the repetitive fourth there was no difference in the improvement made in spelling by both groups. Both gained .6 year in mean grade placement and achieved 86 per cent of expected gain. (Table IV, page 41)

The gap between the mean grade placements of the two groups was .2 year on both the beginning and the ending tests. The control group had a mean grade placement of 4.5 years on the beginning test compared to 4.3 years for the experimentals; both were above what could be expected at that time of the year - 4.1 years. At the end of the year, the mean grade placement of the experimentals exceeded expectancy by .1 year while that of the controls had dropped from .4 year above expected to .3 year above. Both had regressed .1 year in mean grade placement when compared with expected. (Chart XII, Appendix)

Total Language. The experimental repetitive fourth grade gained .1 year more in mean grade placement than did the controls in the total language variable. The improvement in percentage of expected gain was 15 per cent more in favor of the experimentals. (Table IV, page 41)

The experimental group started above the expected mean grade placement, 4.2 compared to 4.1, but was still .3 year below the controls on the beginning test. At the end of the year, the experimental group had achieved a grade placement mean of 5.1 years for an improvement of .9 year or 129 per cent of expected. The control group improved .8 year in mean grade placement or 114 per cent of expected. (Chart XIII, Appendix) The difference of 15 per cent was a _t_ of 2.69 significantly in favor of the experimentals beyond the .01 level of confidence.

Arithmetic. In the only academic variable included in the study, the experimental repetitive fourth grade group gained .3 year more in mean grade placement during the year of 1960-61 than did the controls. The difference in percentage of expected gain was 43 per cent in favor of the experimentals. (Table IV, page 41)

The mean grade placement of the control group agreed with expected 4.1 on the beginning test. The mean grade placement of the experimental group on the same test was .2 year below the expected. The mean grade placements for both groups exceeded expectancy on the final test, the controls at 5.1 and the experimentals at 5.2. The experimentals gained a total of 1.3 years in mean grade placement during the year as against 1.0 year for the controls. (Chart XIV,Appendix)

The percentage of expected gain for the experimentals was 186 per cent compared with 143 per cent for the controls. The difference in percentage of expected gain was 43 per cent in favor of the experimentals giving a t of 4.46 which was significant beyond the .01 level of confidence.

REPETITIVE FOURTH GRADE SUMMARY

During the 1960-61 school year, the new fourth grade students entering the same schools which had been involved in the first year of the study were incorporated into the experiment and have been identified as the repetitive fourth grade.

In this particular year of the study, the repetitive experimental group started with a lower mean grade placement in all areas than the control group. The experimental group exceeded expectancy in all variables measured except in spelling in which they failed to reach expectancy. The control group reached expectancy in two variables, comprehension and total reading; they exceeded expectancy in vocabulary, mechanics of English, total language, and arithmetic; and they failed to reach expected gain in spelling.

The percentage of expected gain was significantly in favor of the experimentals beyond the .01 level of confidence in comprehension, total reading, mechanics of English, total language, and arithmetic. The percentage of expected gain approached the .05 level of confidence in favor of the experimental group in vocabulary. (A derived t of 1.94 compared to a needed t of 1.96 to be significant at the .05 level)

The experimental group exceeded expectancy in six of the seven variables measured; the controls exceeded the expected mean grade placement achievement in four of the seven variables measured.

COMPARISON OF THE TWO FOURTH GRADES
(1959 - 1960)

It has been stated previously that the experimental and the control groups entering the fourth grade in 1959 were also tested in May of 1960 at the end of the first year of the project. It has also been noted that the groups entering the fourth grade in 1960 were exposed to only one year of the experiment. Results for both fourth grades at the end of one year's use of audiovisuals,as specified for the project, are compared below. This comparison has been made primarily to test the minor hypothesis.

After one year's use of audiovisuals, the 1959 fourth grade experimental group had gained more than the controls in terms of mean grade placement in all the variables measured. The difference in percentage of expected gain achieved was significant at the .01 level of confidence in favor of the experimentals in all areas except arithmetic. (Table V,page 48)

TABLE V

THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEANS
COMPUTED BY PER CENT OF EXPECTED GAIN*
FIRST YEAR FOURTH GRADE (1959) - CALIFORNIA ACHIEVEMENT TEST

Variable	EXPERIMENTAL N = 151 Fall 1959 GP**	EXPERIMENTAL N = 151 Spring 1960 GP	EXPERIMENTAL N = 151 % of Expected Gain	CONTROL N = 138 Fall 1959 GP	CONTROL N = 138 Spring 1960 GP	CONTROL N = 138 % of Expected Gain	$\underline{t}$ Ratio***
READING							
Vocabulary	4.1	5.6	188	4.4	5.0	75	14.30
Comprehension	3.7	4.8	138	3.7	4.5	100	6.62
Total	3.9	5.2	163	4.1	4.8	88	10.82
LANGUAGE							
Mechanics of English	3.9	5.5	200	4.1	5.3	150	3.68
Spelling	4.3	5.0	88	4.6	5.0	50	7.04
Total	4.1	5.3	150	4.4	5.2	100	7.40
ARITHMETIC							
Total	3.9	5.0	138	4.0	5.0	125	1.71

*Expected gain = Period from pretest (Fall, 1959) to Spring, 1960 or .8 year

**GP = Grade Placement

***$\underline{t}_{.05} = 1.96$

The repetitive fourth grade experimentals (fall of 1960) similarly gained more than the controls in all the variables measured, and significantly more at the .01 level of confidence in all areas except vocabulary, which approached the .05 level, and Spelling in which there was no difference. (Table IV, page 41)

A comparison of the percentages of expected gain achieved with one year's exposure to audiovisuals by both fourth grade experimentals follows:

	EXPERIMENTAL GROUPS	
Variable	1959 Fourth Grade (First Year) % of Expected Gain at the End of One Year - May, 1960	1960 Fourth Grade (Repetitive) % of Expected Gain at the End of One Year-April, 1961
Vocabulary	143	188
Comprehension	314	138
Total Reading	229	163
Mechanics of English	171	200
Spelling	86	88
Total Language	129	150
Total Arithmetic	186	138

It will be seen from the above comparison that the 1959 fourth grade achieved more than the repetitive fourth in three variables: comprehension, total reading and total arithmetic in terms of expected; the repetitive fourth gained more in four variables: vocabulary, mechanics of English, spelling and total language even though the period between the tests was one month less than the 1959 period between tests.

2

CHAPTER V

FINDINGS AND IMPLICATIONS FOR EDUCATION

BRIEF SUMMARY

Both fourth grade experimental groups gained more than the controls in mean grade placement in all variables except spelling. In all areas except comprehension, the 1959 experimentals started .1 year or more below the controls in mean grade placement. However, the differences in the percentages of expected gain achieved by the 1959 fourth grade were significantly in favor of the experimentals at the .01 level of confidence in all areas,except spelling, by the end of the project.

The repetitive fourth grade experimentals started .2 year or more below the controls in all variables measured. The repetitive experimentals gained significantly more at the .01 level of confidence in all variables except vocabulary and spelling. The difference in vocabulary did approach the .05 level of confidence, but there was no difference in the gain made by the two groups in spelling.

When the achievement of the two fourth grade experimental groups was compared after one year of exposure to audiovisuals, the repetitive fourth gained more in four of the seven variables with .1 year less instructional time between tests.

Subjectively, there was general teacher approval of the use of audiovisuals. This was borne out by the fact that four of the experimental schools initiated an audiovisual program at the conclusion of the project and purchased one or more pieces of the leased equipment situated in their schools.

The majority of the experimental teachers reported noticeable improvement in all areas of the curriculum, less absenteeism, fewer disciplinary problems, maintained interest and excitement, and resultant longer retention.

In general there was improvement in the quality of the voices of the students in the experimental group.

CONCLUSIONS

It is concluded that the major hypothesis was upheld. The experimental groups used audiovisuals for a very limited time (one-half hour per school day) but achieved significantly better than the controls in most of the variables on each test subsequent to the pretest.

It is concluded also that the minor hypothesis (improvement in instruction) was upheld. The repetitive fourth grade experimentals achieved better than the first year experimentals in four of the seven variables though there was .1 year less instructional time between tests for the repetitive fourth.

The degree to which pupil achievement can be attributed to the use of audiovisuals is not known because teacher motivation was not measured, but the effect of the audiovisuals, whether direct or indirect through teacher motivation, was measurable and significant.

IMPLICATIONS FOR EDUCATION

Research up to this date points to a deficiency in the usage of the English language by Spanish-English speaking children. They fail to reach the level of achievement of their capacities, and they lag behind their Anglo contemporaries due to their inability to comprehend the abstractions expressed in English.

Children from most bilingual homes face the problem of learning English, a foreign language to them, in classrooms where it is assumed, at least in the areas of curriculum and facilities, all children are of the English-speaking culture. These bilinguals do not have a normal understanding of English, nor do they have adequate opportunities to hear and practice the English foreign language. Such practice is often limited to the children's time in crowded classrooms under less than optimum conditions. Since concrete experiences in the use of English are limited for children from Spanish- or Indian-speaking homes, it seems logical that the vicarious, concrete experiences provided by audiovisuals, which depict the dominant Anglo culture, would accelerate the acculturation of such children.

With audiovisual materials, the child can utilize multiple senses in the learning process. He experiences rather than just being told; consequently, he retains more and longer. The use of audiovisuals in the teaching of science is no longer questioned. Audiovisuals are also being used more and more to promote the learning of a second language for English-speaking students through the aural-oral approach at the higher grade levels. It is reasonable to assume that the imaginative use of audiovisuals--language labs, films, filmstrips, records, and tapes--for learning English as a foreign language,and for learning new English concepts,would be of great value if the teachers had adequate equipment and proper, graded materials with which to supplement their classroom techniques.

This study lends encouragement to the adaptation of audiovisuals for the specific purpose of conceptualization for bilinguals. The results of this study must not be construed as proof that audiovisuals are a panacea for the bilingual problem. There were several interesting, and in some cases inexplicable, findings. For example, the achievement of the experimentals at the end of the first year of the study far exceeded normal expectancy. This could be attributable to the Westinghouse or Hawthorne effect (improved performance resulting from the involvement in an endeavor) which may have resulted from the excitement generated by participation in an experiment involving new mechanical gadgets. It could be anticipated that such stimulation would reach a plateau with familiarity; but in this instance, that plateau was high enough to enable the experimentals to continue a higher rate of achievement than the controls through the second year of the study. The question arises as to the length of time such a high degree of stimulation could be maintained. It is possible, perhaps probable, that continued, routine use would result in undue saturation thereby nullifying or decreasing the benefits which might otherwise accrue if audiovisuals were used intermittently. Perhaps the saturation technique should be reserved for driving home a specific point or a concept of great importance.

Another interesting finding occurred in the second year of the study. Throughout the second year there was measureable improvement,but the rate of improvement leveled for the first year fourth grade and was more gradual for the repetitive fourth than it had been for the 1959 fourth during its first year. This suggests the adaptation effect discussed above.

Other conditions which may have had some effect on the results of this study relate to the use of materials. During the second year of the experiment, it was discovered that some of the control teachers were exposing their groups to much of the same material the experimental groups had used the previous year. It is possible that the difference in favor of the experimentals may have been decreased by this activity. Also during the second year of the study, many of the materials which were used at the fifth grade level had been used the previous year at the fourth grade level due to the lack of adequate graded materials. This may have had a negative effect on the gain made by the experimentals in the fifth grade.

This study indicates the value of using audiovisuals for bilinguals in the basic field of language arts at the elementary level. It also indicates that improved teaching may result from their use. They should not, however, be considered a substitute for a well prepared teacher. If anything, audiovisuals demand even more thorough preparation from the teacher. There is much more to their use than merely plugging in a machine and viewing a film. Analysis of the learning situation, advance planning, and careful integration must go into the selection and use of audiovisuals. Irrelevant experiences, regardless of how concrete, would be of very questionable value in most areas of learning. Audiovisuals must complement the teacher's own understanding of bilinguals and his preparation for teaching them. The use of audiovisuals were effective, but they should not be used as the method; rather they should be used as aids to the teacher's fundamental method.

Both objective and subjective evidence was found to substantiate definite improvement in language arts with the use of audiovisuals; the study also pointed up other beneficial by-products.

In the course of the study, many areas deserving further consideration became apparent and are identified in the last section of this chapter.

RECOMMENDATIONS

1. Further study is needed with more closely matched groups for a longer period of time.
2. A study should be undertaken to produce better materials and to experiment with their usefulness.
3. Research should be carried out under the direct teaching of all experimental groups by one teacher.
4. A comparative study should be made between Spanish-American and Indian pupils using Anglo-American pupils as the controls.
5. A study of the effect of teacher preparedness in audiovisuals versus those without instruction in the use of audiovisual tools should be undertaken.
6. The effects of audiovisual instruction at earlier grade levels should be tested.
7. The accumulated materials should be circulated to the schools in the service area.

8. The time element should be analyzed further through research to determine:
    a. if longer daily periods of audiovisual instruction would increase achievement.
    b. if intermittent use of audiovisuals would deter the possible adaptation effect.

APPENDICES

App.#

CHARTS

1959 Fourth Grade; 1961 Fifth Grade

- Vocabulary A - 1
- Comprehension A - 2
- Total Reading A - 3
- Mechanics of English A - 4
- Spelling A - 5
- Total Language A - 6
- Total Arithmetic A - 7

1960 Fourth Grade, Repetitive

- Vocabulary A - 8
- Comprehension A - 9
- Total Reading A -10
- Mechanics of English A -11
- Spelling A -12
- Total Language A -13
- Total Arithmetic A -14

LISTS

- Materials Used A -15
- Sources of Materials A -22
- Public School Personnel A -24

CORRESPONDENCE A -25

CHART 1
CALIFORNIA ACHIEVEMENT TESTS
VOCABULARY

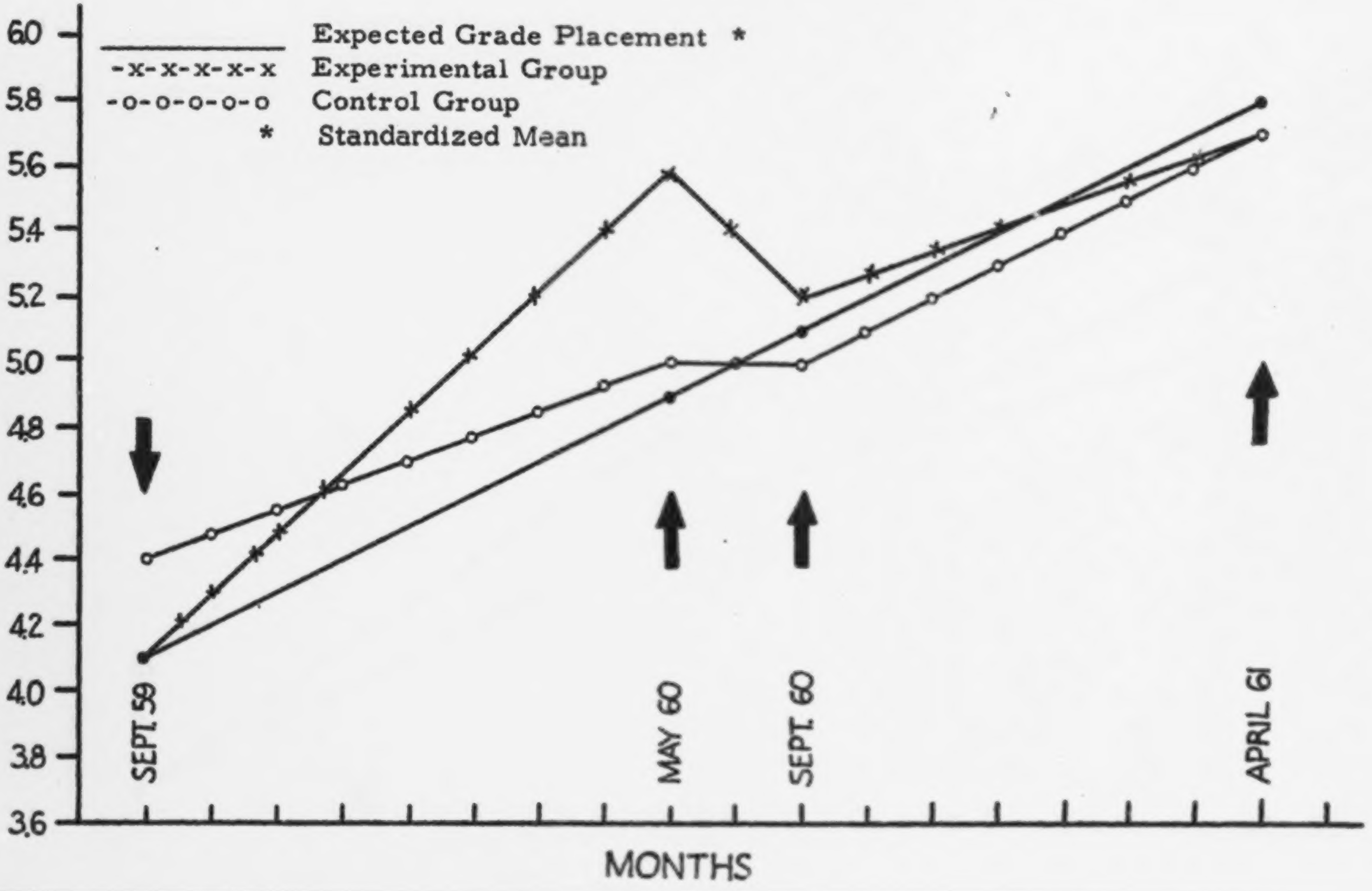


CHART 2
CALIFORNIA ACHIEVEMENT TESTS
COMPREHENSION

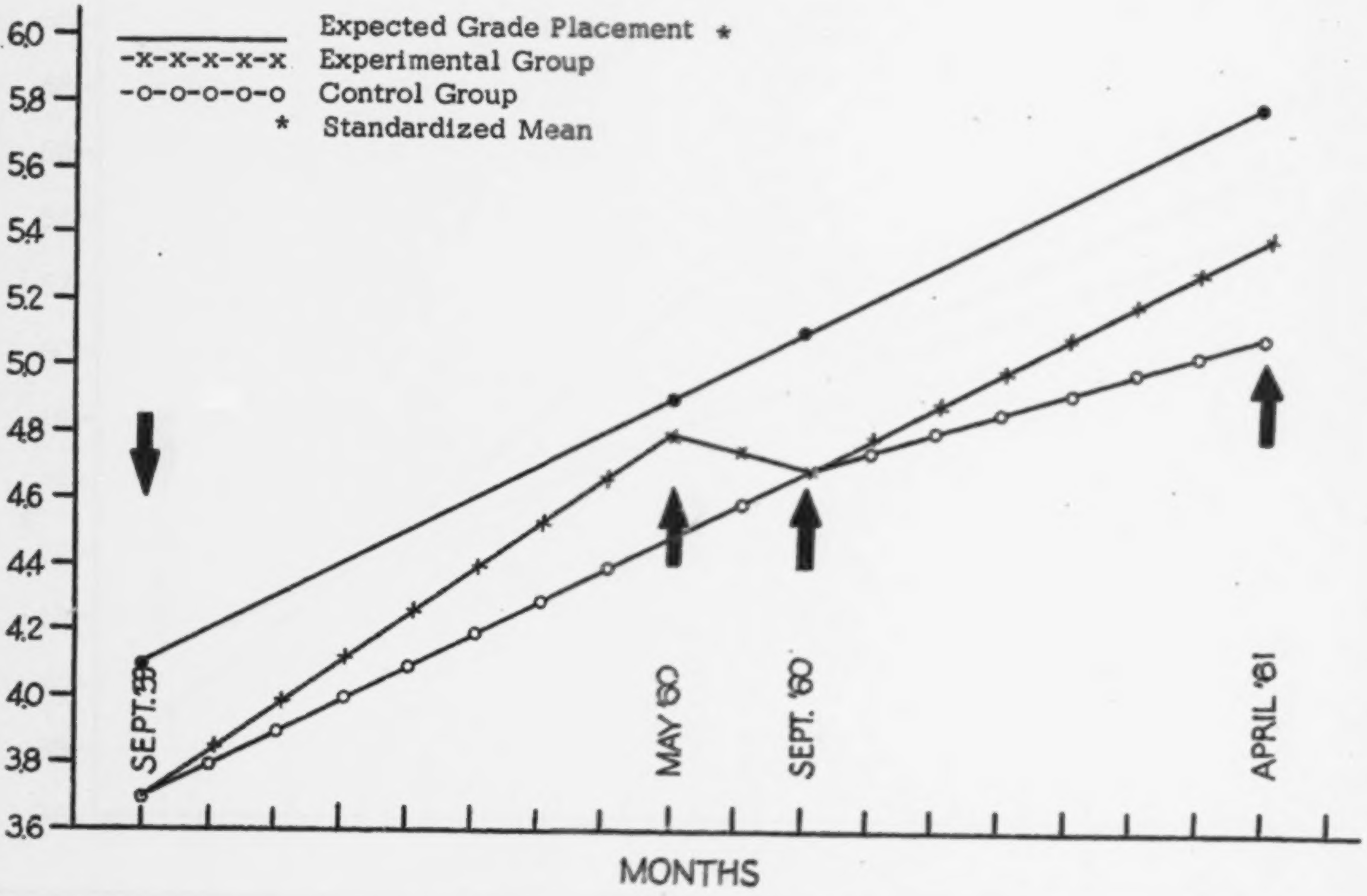


CHART 3
CALIFORNIA ACHIEVEMENT TESTS
READING TOTAL

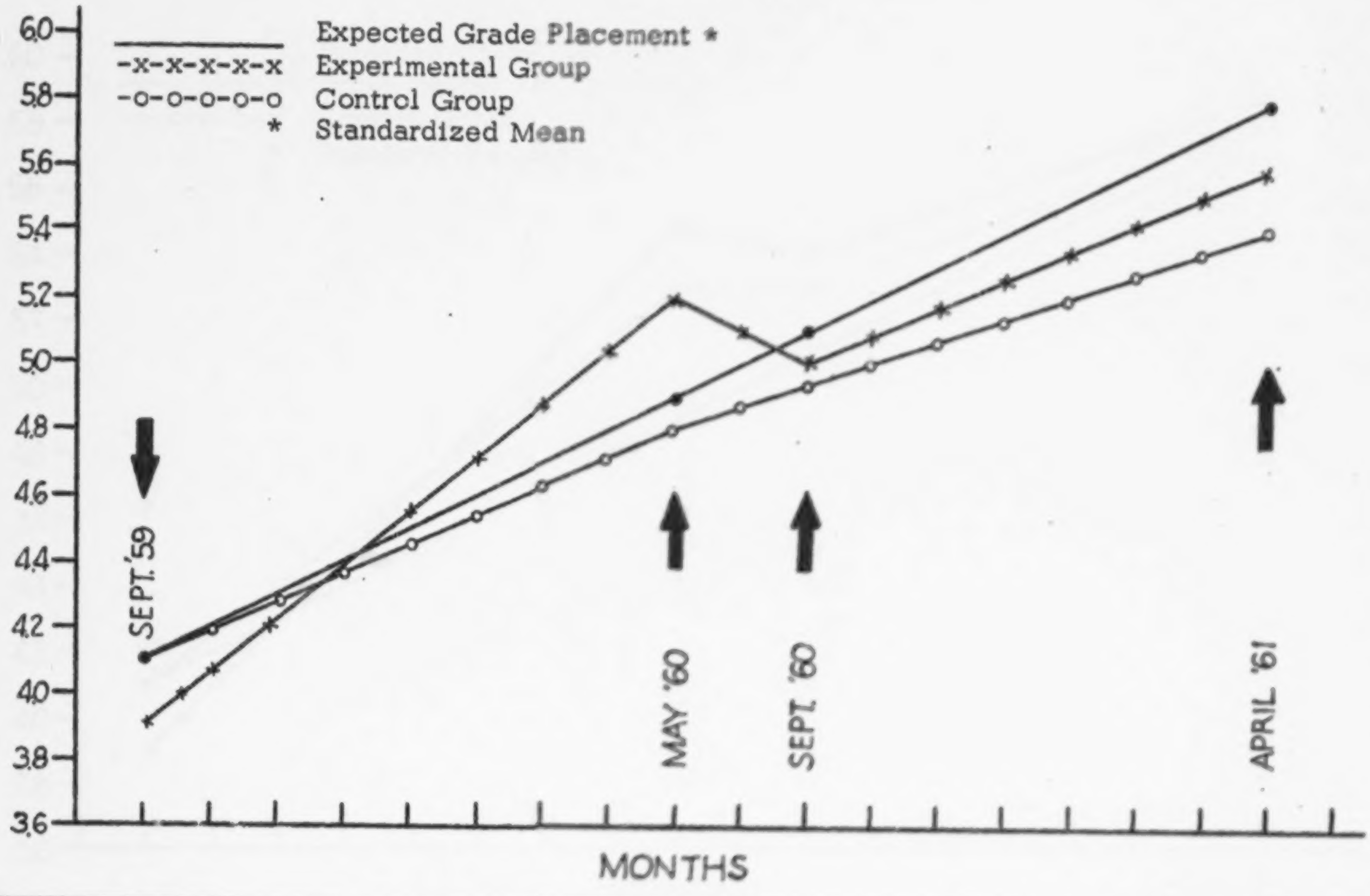


CHART 4
CALIFORNIA ACHIEVEMENT TESTS
MECHANICS OF ENGLISH

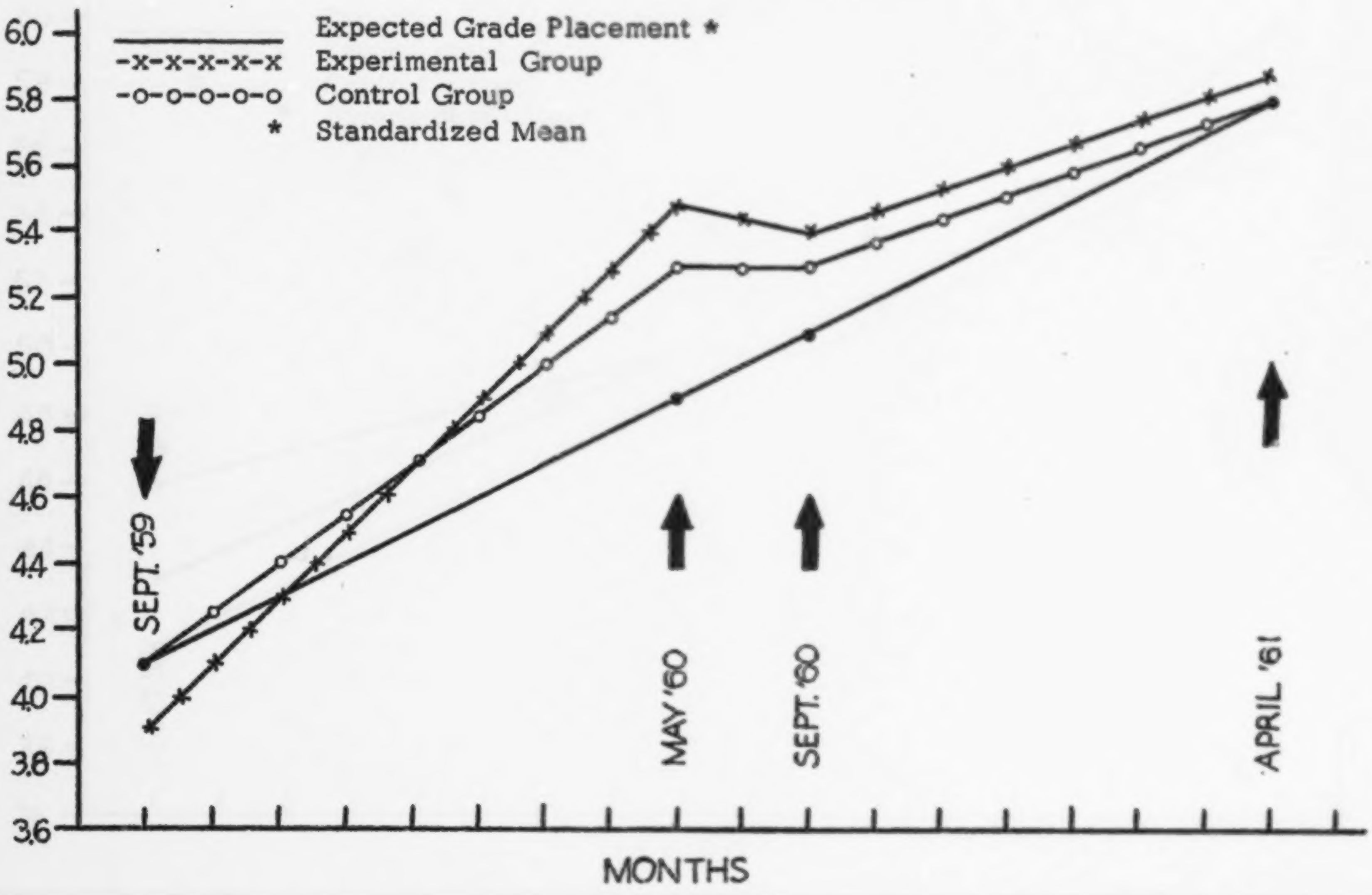


CHART 5
CALIFORNIA ACHIEVEMENT TESTS
SPELLING

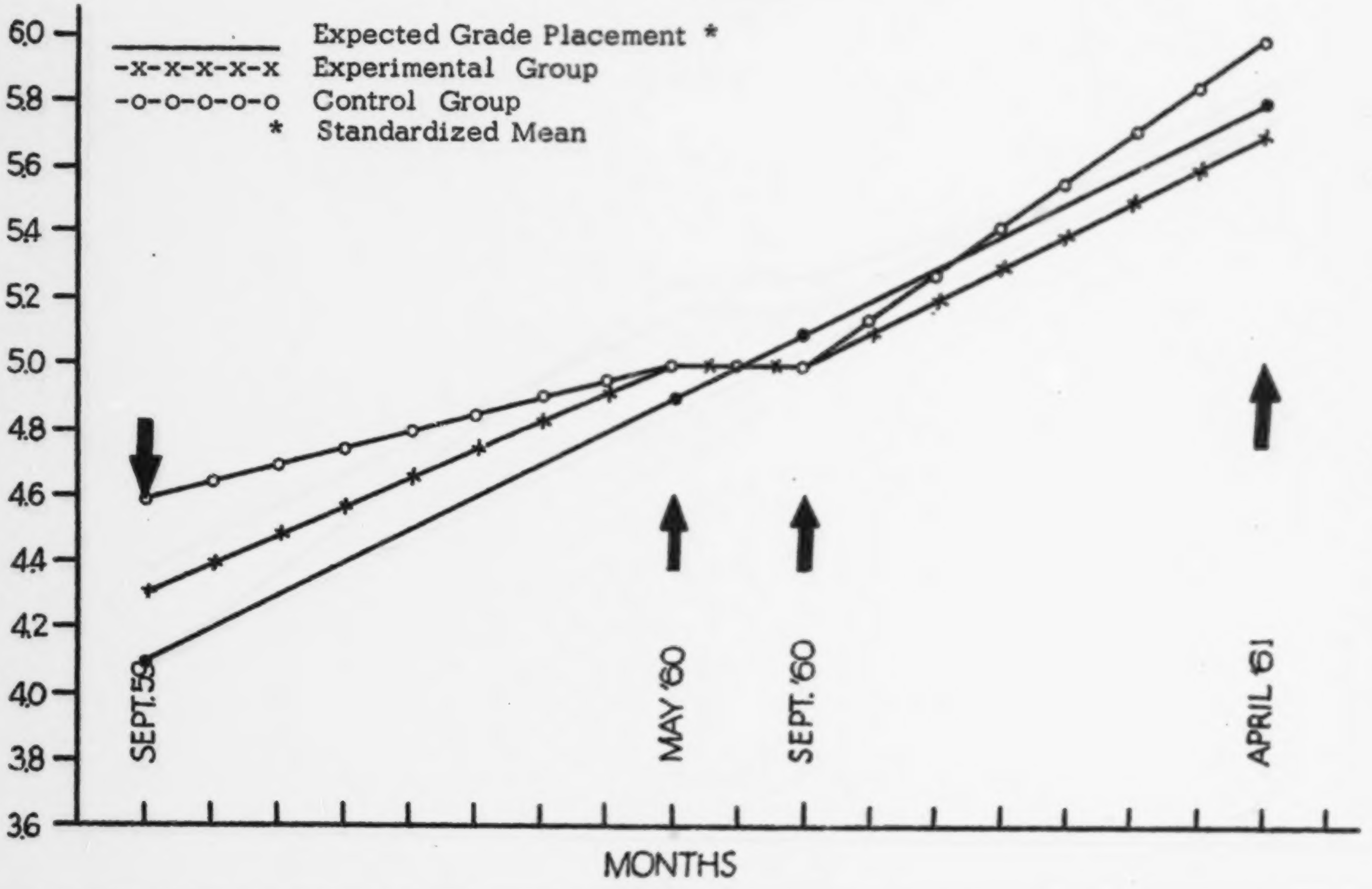


CHART 6
CALIFORNIA ACHIEVEMENT TESTS
LANGUAGE TOTAL

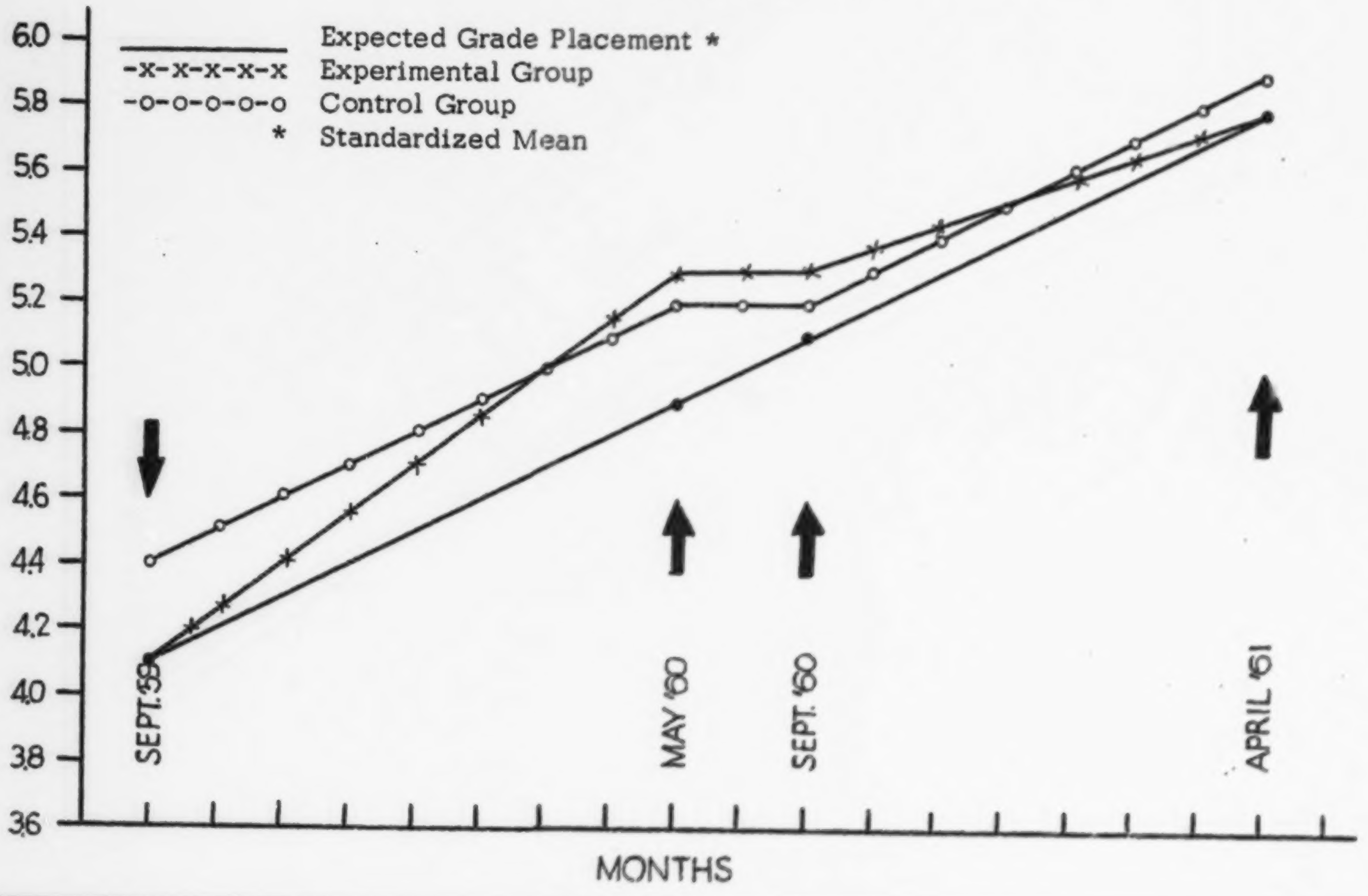


CHART 7
CALIFORNIA ACHIEVEMENT TESTS
ARITHMETIC TOTAL

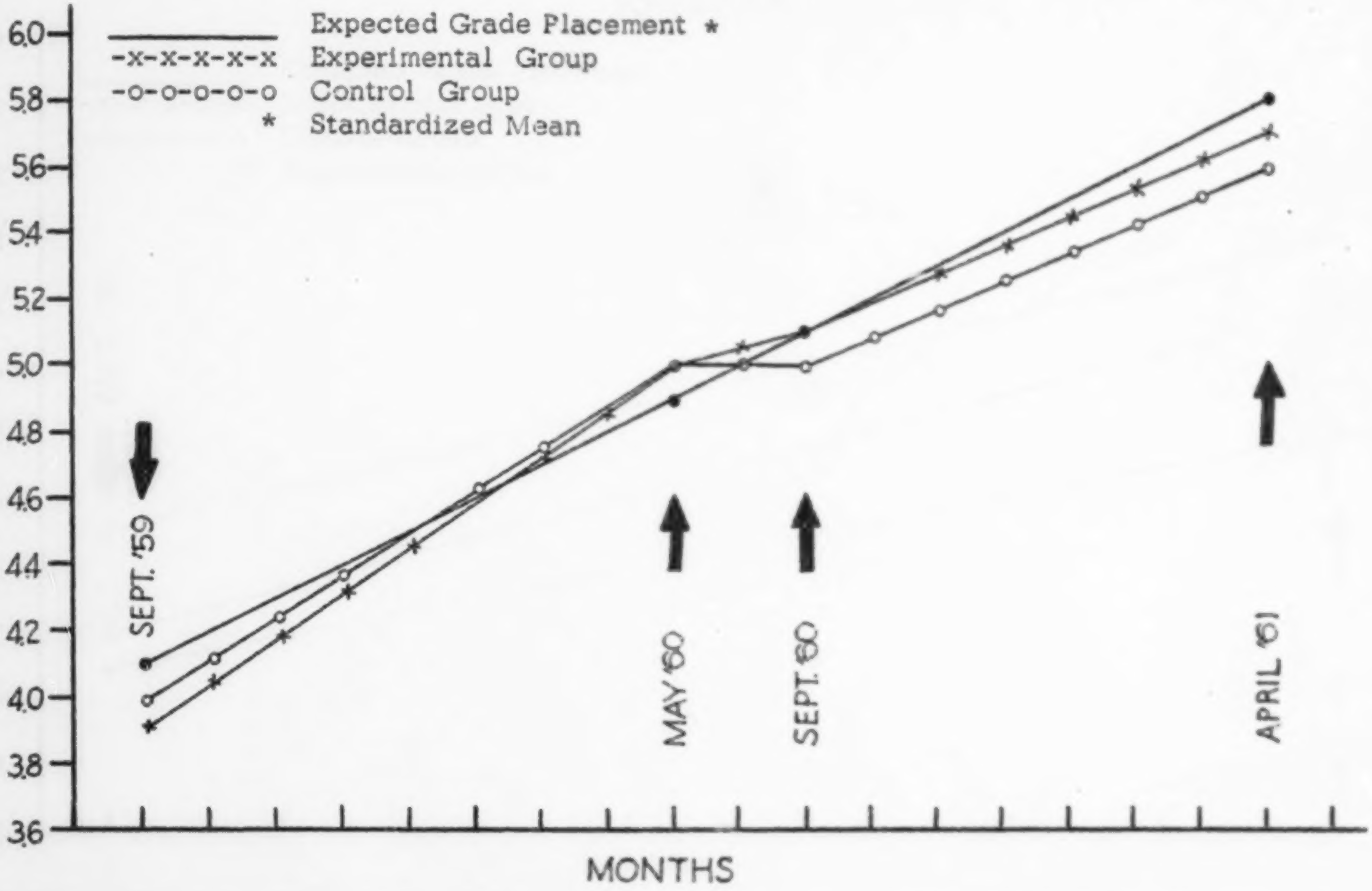


CHART 8
CALIFORNIA ACHIEVEMENT TESTS
REPETITIVE FOURTH GRADE GROUPS
VOCABULARY

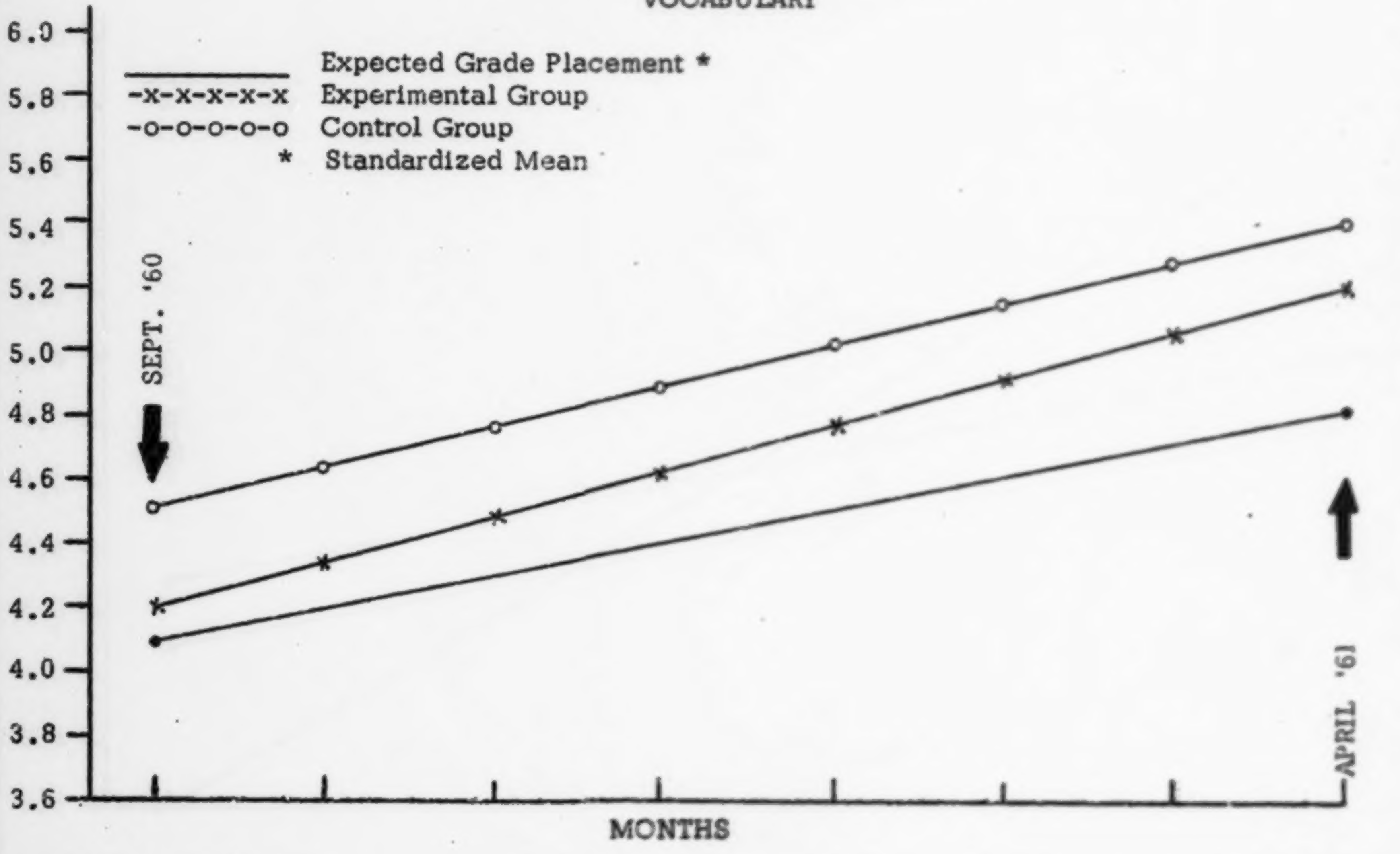


CHART 9
CALIFORNIA ACHIEVEMENT TESTS
REPETITIVE FOURTH GRADE GROUPS
COMPREHENSION

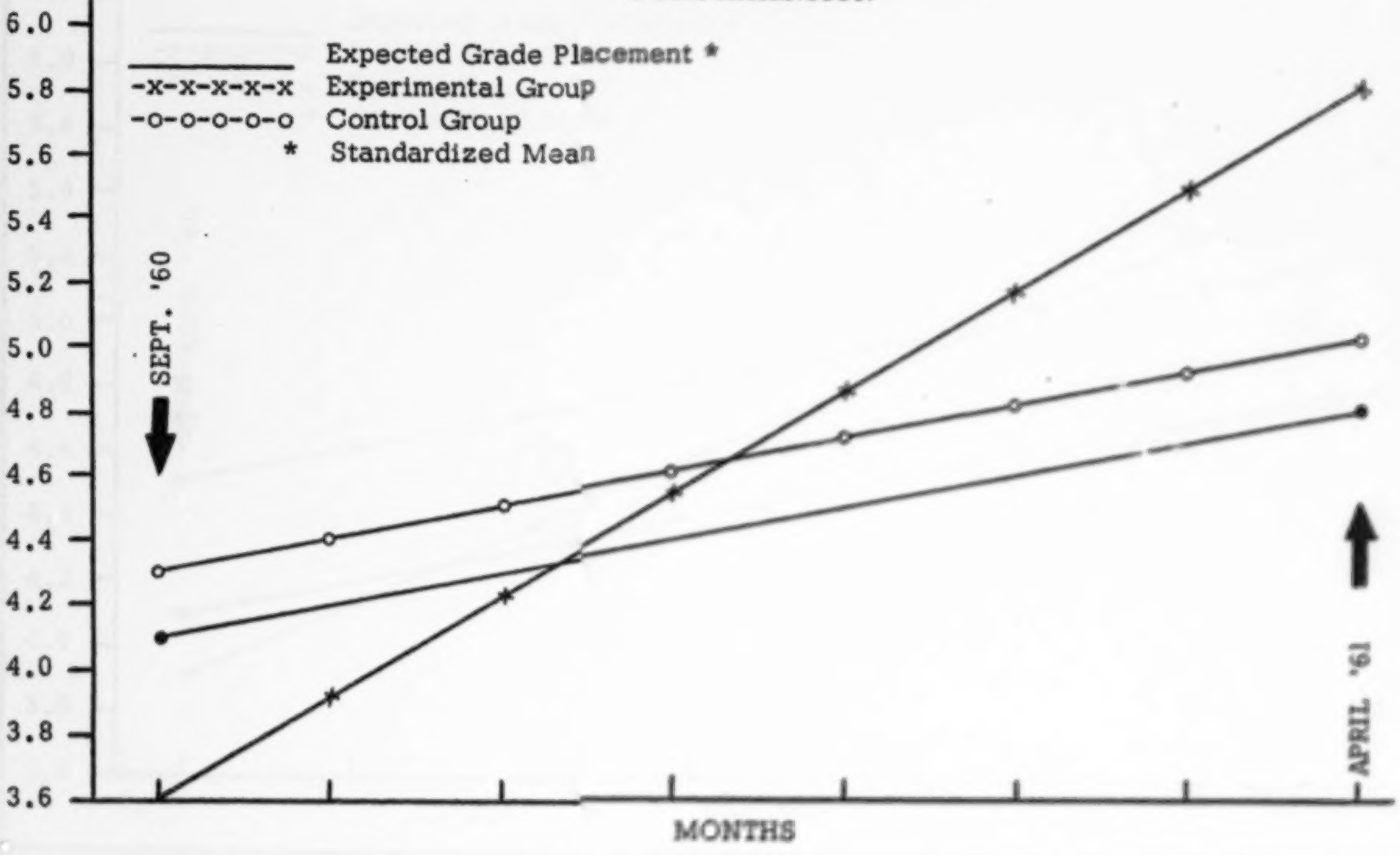


CHART 10
CALIFORNIA ACHIEVEMENT TESTS
REPETITIVE FOURTH GRADE GROUPS
READING TOTAL

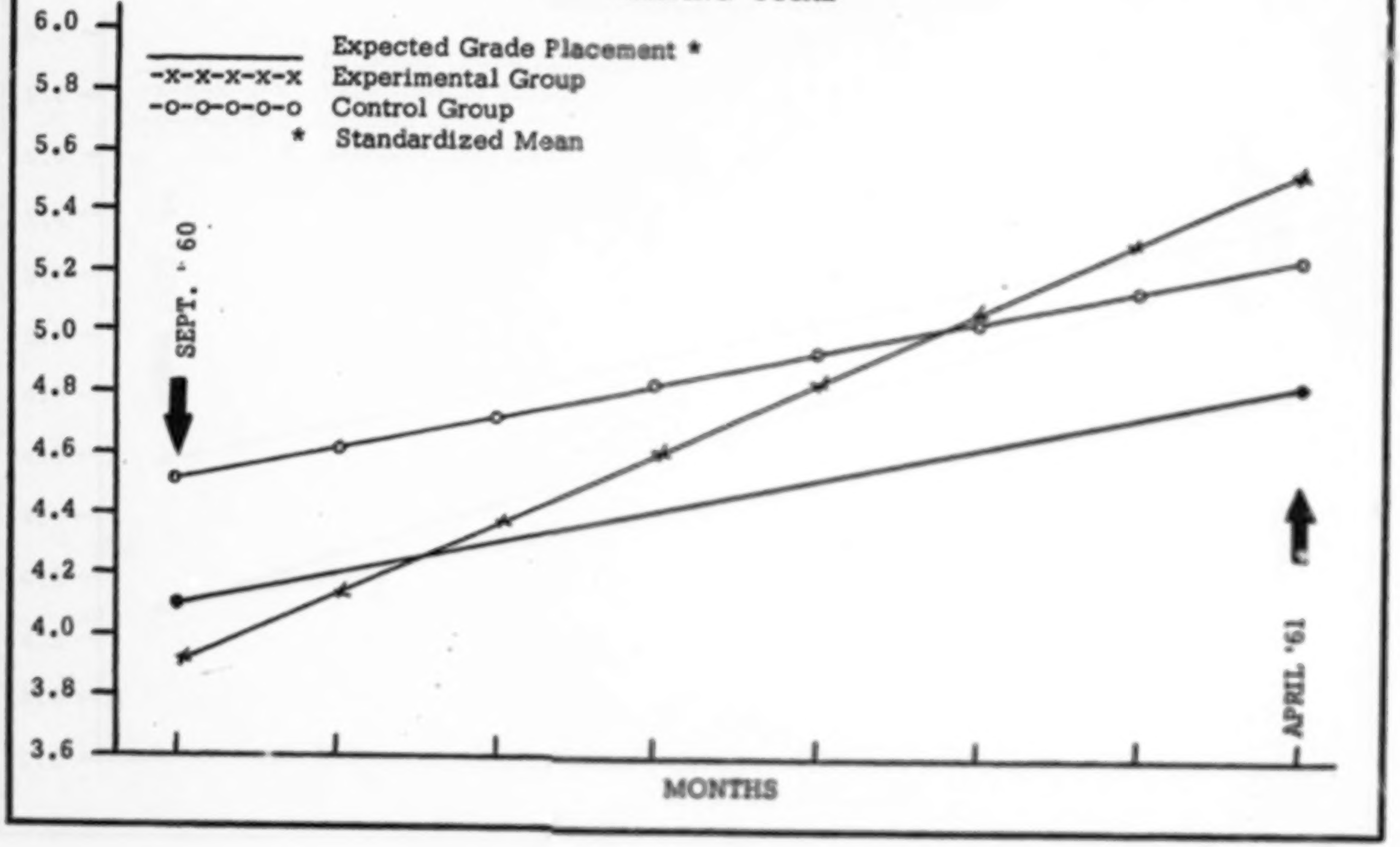
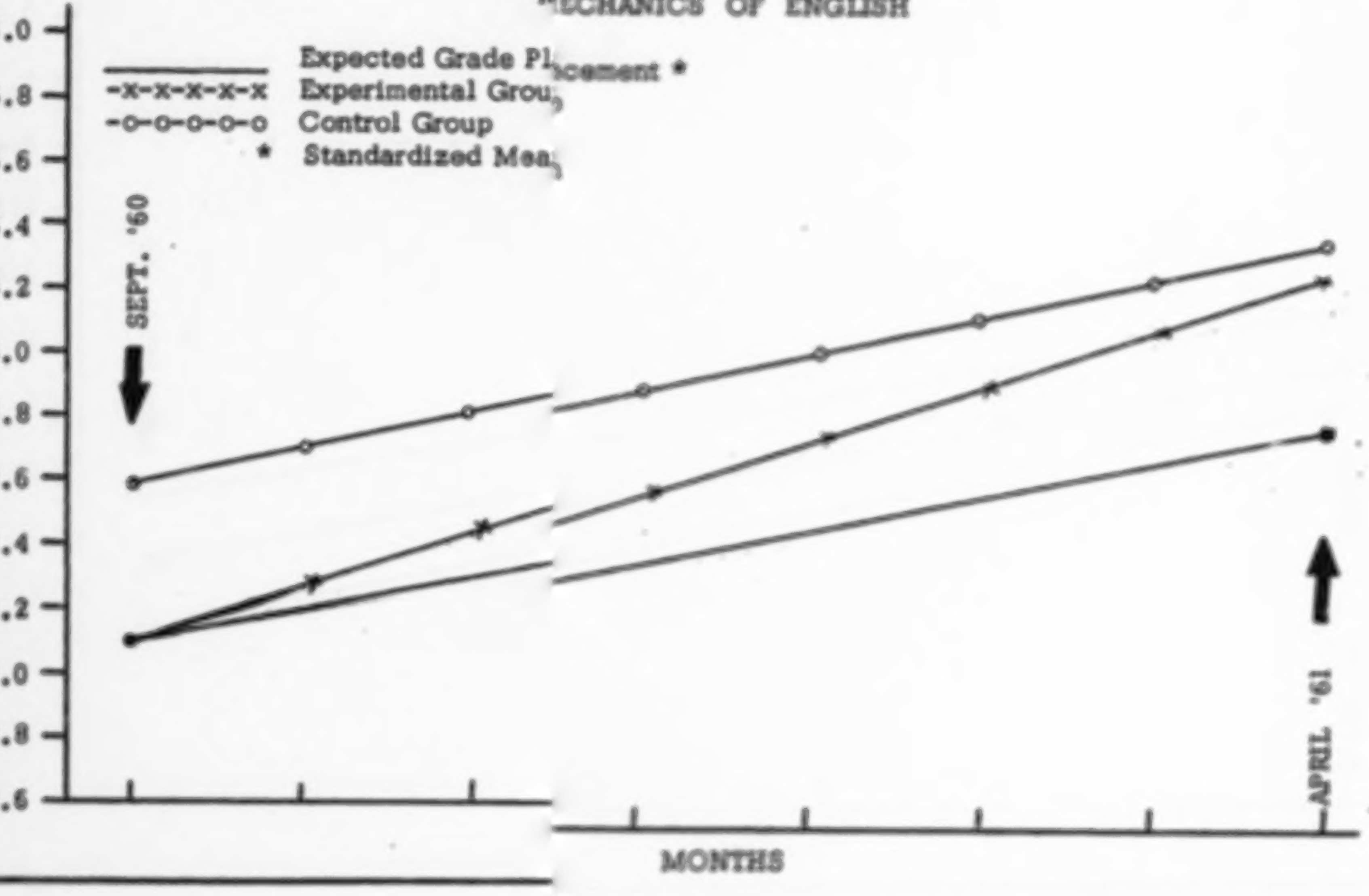


CHART 11

CALIFORNIA ACHIEVEMENT TESTS
REPETITIVE FOURTH GRADE GROUPS
MECHANICS OF ENGLISH



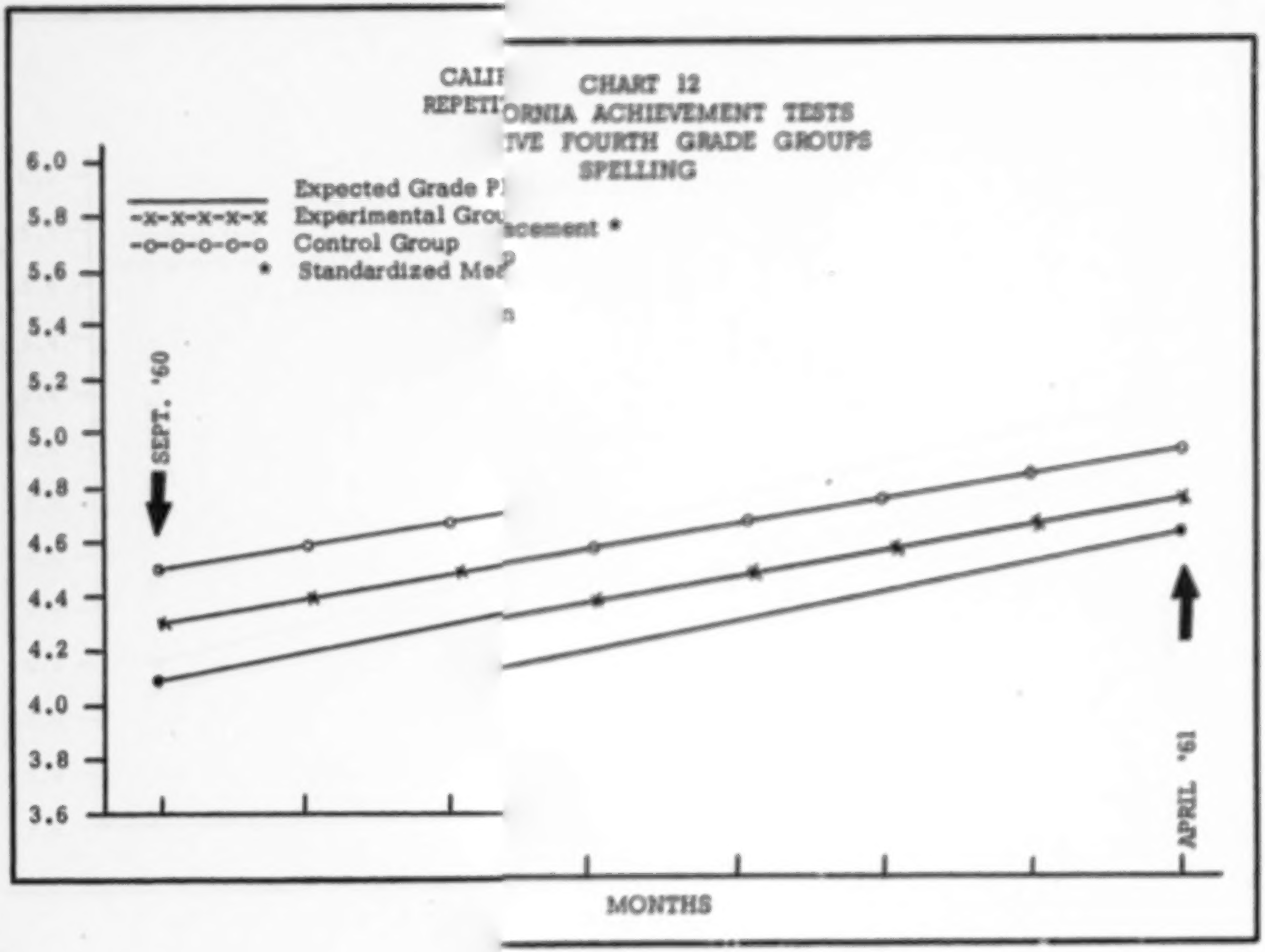


CHART 12

CALIFORNIA ACHIEVEMENT TESTS

REPETITIVE FOURTH GRADE GROUPS

SPELLING

CHART 13
CALIFORNIA ACHIEVEMENT TESTS
REPETITIVE FOURTH GRADE GROUPS
LANGUAGE TOTAL

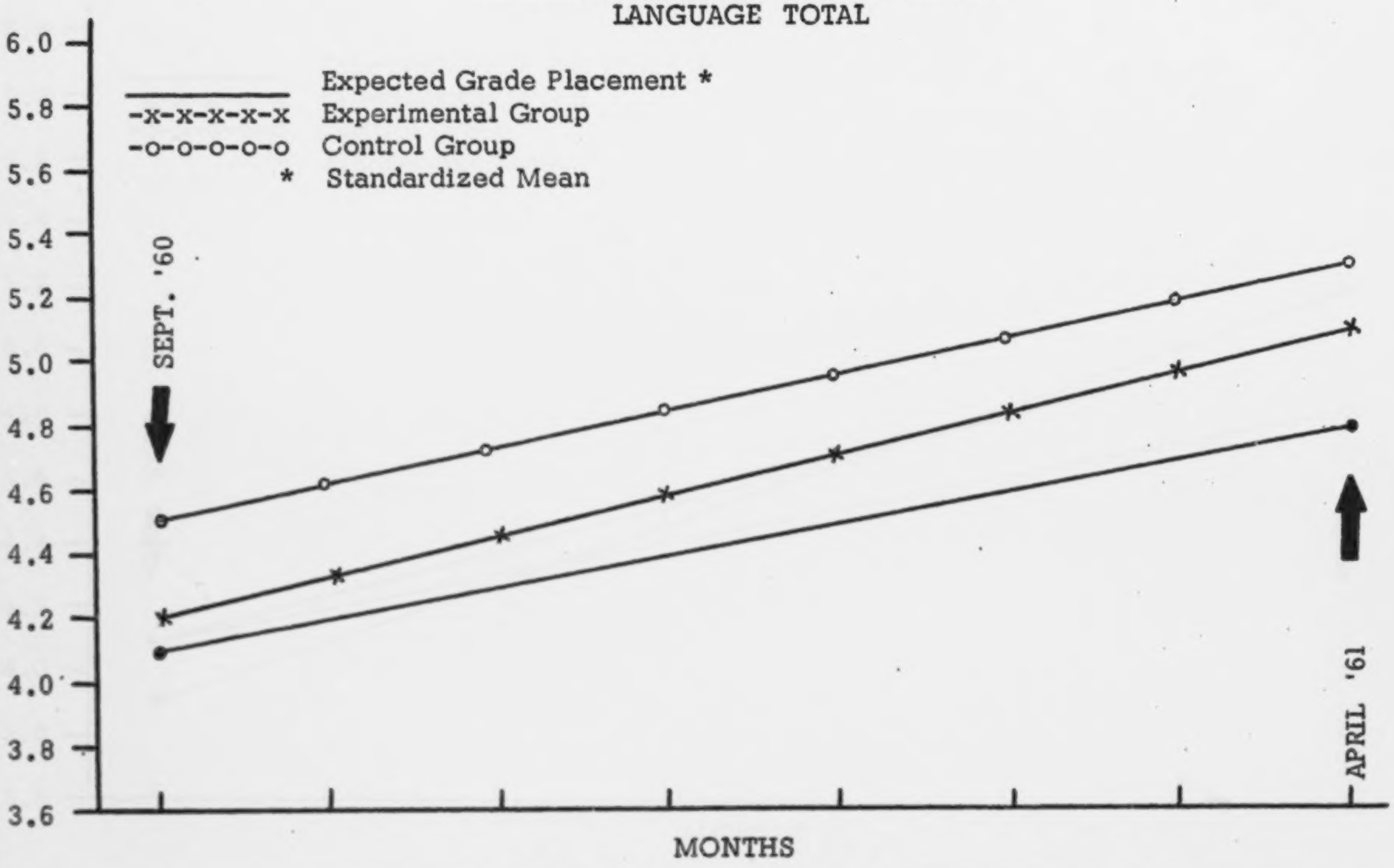
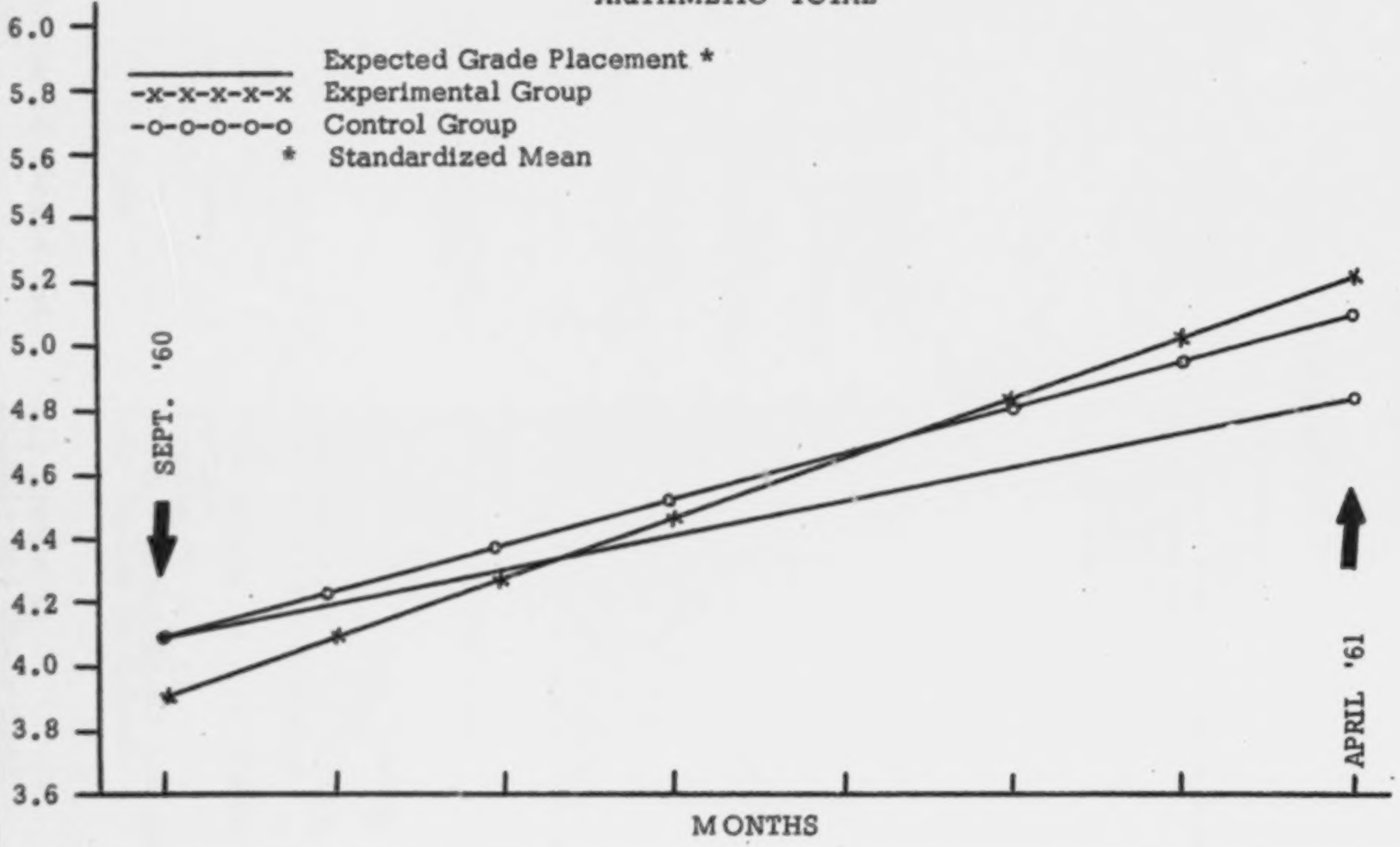


CHART 14
CALIFORNIA ACHIEVEMENT TESTS
REPETITIVE FOURTH GRADE GROUPS
ARITHMETIC TOTAL



MATERIALS USED

PICTURE SERIES

Alaska
All American
China
Colonial America
Coming of the Machine
Great Explorers
Hawaiian Islands
India
Indian Life
Pioneer Days
Pioneers West of the Mississippi
South America
Soviet Union
Transportation I and II
Voyage and Discovery

FILMS

Building Better Paragraphs
Discovering the Library
Fun with Speech Sounds
Improve Your Pronunciation
Let's Make Puppets
Listen Well, Learn Well
Making Sense With Sentences
Newspaper Story
Punctuation - Mark Your Meaning
Storytelling: Can You Tell It In Order?
Who Makes Words?
Chinning with Chipmunks
Do Words Ever Fool you?
How Effective is Your Reading?
Improve Your Reading
Library Story
Making Sense With Outlines
Making Yourself Understood
Poems are Fun
Spelling is Easy
Story Acting is Fun
Watch That Quotation
We Discover the Dictionary
Writing Better Social Letters

Be Clean and Neat
The Care of Hair and Nails
Cleanliness and Health
The Doctor
Eggs
Fire Prevention
Healthy Eyes
Let's Have Fewer Colds
Mealtime and Health
Safe Living at Home
Safe Living in Winter
Sleep for Health
The Teeth
Your Health at Home
Why Foods Spoil
Bread
The Care of the Skin
Clothing
Eat For Health
Exercise for Happy Living
Food From Our Garden
Learning About Our Bodies
Making Cotton Clothing
Milk
Safe Living in Your Community
Shelter
Sunshine I and II
Teeth - Development and Care
Your Health at School

Adaptations of Plants and Animals
Animals in Modern Life
Air Around Us
Animals and Their Food
Animals in the Spring

Animals in the Summer
Animals in the Winter
Animals -- Ways They Eat
Animals with Backbones
Beach and Sea Animals
Beyond Our Solar System
Birds are Interesting
Birds of North America
Birds of the Countryside
Common Animals of the Woods
Electricity All About Us
Frisky, the Calf
Garden Plants and How They Grow
Hawaiian Nature Life
How Insects Help Us
Gravity -- How It Affects Us
The House Fly
How Plants Grow
How Water Helps Us
Insect Zoo
Learning About Heat
Leaves
Life in the Sea
Light All About Us
Marine Life
Mammals are Interesting
The Moon and How It Affects Us
Our Earth
Planting Our Garden
Pond Insects
Reptiles and Their Characteristics
Sandy the Snail
Seashore Life
Seasons of the Year
Spring is an Adventure
The Hunter and the Forest
Water Birds
Water, Water Everywhere
The Ways Animals Eat
What is Science?
Why Seasons Change
Winds and Their Causes

Animals in the Sun
Animals Protect Themselves
Animals -- Ways They Move
Ants
The Bear and Its Relatives
Big Land Animals of North America
Bird Homes
Birds of Prey
Birds of the Woodlands
Chemical Change
Exploring Matter
The Frog
The Grasshopper
Growth of Seeds
The Honeybee
How Nature Protects Animals
The Growth of Flowers
How Plants Help Us
How Trees Help Us
How Weather is Forecast
Learning About Flowers
Learning About Sound
Life Cycle of a Pea
Life of a Plant
Loon's Necklace
Matter and Energy
Microscopic Life: The World of the Invisible
The Earth's Rocky Crust
Our Weather
Plants Make Food
Pond Life
Salmon
The Salmon Story
Science and Superstitions
Seasonal Changes in Trees
Simple Changes in Matter
Sounds All About Us
Volcanoes in Action
Water -- Friend or Enemy
The Ways Animals Move
The Weather Station
What is Sound?
The Wildlife World
Why Does Weather Change?

A Boy of the Seminoles
The American Flag
A Nation is Born
A People of the Congo

A Giant People (The Watussi)
The American Revolution
Andes Mountains and the Argentine

A Pioneer Home
Bali Today
Benjamin Franklin
Boy of a Frontier Fort
Children of Germany
Children of Japan
Colonial Children
Colonial Life in New England
Conservation of Natural Resources
Early American Indians
Early Settlers in New England
Eskimo Children
Far Western States
French Explorations in the New World
Grand Canyon
Hawaii - The Fiftieth State
How Man Made Day
India and Pakistan
Inventions in American Growth
It Takes Everybody to Build This Land
Lapplanders
Life in Cold Lands
Life in Hot Wet Lands
Life in the Sahara
Life of a Primitive People
Maps are Fun
Mexican Children
Middle States
Modern Hawaii
The Northwestern States
Our Country's Emblem
Our Country's Song
Paper
People of the Reindeer
Pioneer Community of the Midwest
Pygmies of Africa
Round Up Time in New Mexico
Southeastern States
Spanish Influence in the United States
The Story of Christopher Columbus
The Louisiana Purchase -- Key to a Continent
Arabian Children
Battle of Yorktown
Boats
Builders of America
Captain John Smith
Children of the Alps
Colonial Expansion
Colonial Williamsburg
Daniel Boone
Discovery and Exploration
East
Egypt and the Nile
Engines and How They Work
Evergreen Empire
Flat Boatmen of the Frontier
George Washington
Gold Rush Days
Greek Children
Hindu Family
How We Cooperate
India - Customs in Villages
Iron and Steel
Italian Children
Lafayette
Land of Mexico
Lewis and Clark
Life in Hot Dry Lands
Life in Old Louisiana
Life of a Nomad People
Maps and Their Uses
Meet Mr. Lincoln
Middle East
The Midnight Ride of Paul Revere
The Northeastern States
Norwegian Children
Our Country's Flag
Our Post Office
Pecos Bill
People Along the Mississippi
Pioneers of the Plains
Printing Through the Ages
Rockefeller Center
Southwestern States
Spanish Colonial Family in the Southwest
Sir Francis Drake
The Story of a City -- New York
Texas and the Far South
Territorial Expansion of the United States

The Story of Maple Sugar
Transportation in the Modern World
Visit With the Cowboys
We Explore the Beach
Wheat Farmer
Work of Running Water
Woolen Goods
The Revolution
Travel in America in 1840
Truck Farmer
Wanderers of the Desert
Westward Movement
Woodland Indians of Early America
Wool-(From Sheep to Clothing)
Five Tons to the Acre

Am I Trustworthy
City Fire Fighters
Don't Get Angry
Golden Rule
Helpers Who Come to Our House
One Rainy Day
Organizing Discussion Groups
Safety With Everyday Tools
Christmas Through the Ages
Courtesy at School
Fireman
Growing Up
Jimmy Visits the City
Morning Star
On the Way to School
Rumpelstiltskin
Our Manners Series

FILMSTRIPS

All Aboard the Punctuation Express
Classical Literature - Parts One through Twelve
Fundamentals of Grammar
Hearing Sounds of Words
Improve Your Spelling
Letters Which Work Together
Pilot to Good English Series
Presenting the Comma
Sentence Fragments
The Comma - I, II, III
Words-I, II
Writing the Paragraph Series
Apostrophe
Beginning Grammar
Colon, Semicolon, and Dash
End Punctuation Marks
Fundamentals of Language Arts
Improve Your Reading
Letter Writing
My Talking Helps
Plurals and Possessives
Quotation Marks and Italics
Learning About Simple Sentences
The Sounds - Ch & I; F & V; I; K & G; Mn & Ng; P & B; R; S; Sh; T & D; Th

Air
Animal Life - Birds
Animal Life - Looking For Animals
Evil Spider
Farming Practices
Forest Conservation
General Science (Mechanics)
How Plants Help Animals
How Things in the World Change
Learning About Science Series
Animals and Their Ways
Animal Life - Cats
Animal Life - Rabbits
Elementary Science Set I & II
Exploring the Sun
Fire and Heat
Fundamentals of Science - Parts 1058, 101, 106G, 105F, 105H, 51B - C - D
Iceburgs and Glaciers
Induction and Reaction
Levers
Light

Lions and Goats
The Mouse Who Boasted
New Frontiers in Science
Petroleum in Today's Living
Putting Sound to Work
Silly Rabbit
Sound
Stop Gullies
The Four Seasons
The Weather Station
Temperature
What Animals Give Man
Magnetism
New Conquests of Nature
Oil From Earth to You
Protecting Plants & Animals
Science in Everyday Life
Sonic & Supersonic
Sound Reproducers
The Farm
The Storm
The Sun at Work
Water

Air Travel
Benjamin Franklin
Colonial Home Act
Cortez Conquers Mexico
Coal From the Ground Up
Eagle Dances
George Washington
Great Plains
Historic New Mexico
Homemaking in Colonial Days
How Columbus Discovered America
Industry Changes America
Life in Colonial America
Lincoln
Maps and How to Use Them
Navajo Silversmith
New York City - Transportation
Panama
Pilgrims - A & B
Pueblo Pottery
Rise of the New World
Salvador
Sir Francis Drake
The Buffalo & Westward Expansion
The Mississippi River
The Story of the American Indian
William Penn
Air Transportation
Christopher Columbus
Community Life
Cotton From Field to Mill
Daniel Boone
Early Navigators
Golden Age of Spanish Discovery
Guatemala
History of Transportation
Honduras
Indian Life
Indians of the Southwest
Janet Visits a Dairy Farm
Life in the Colonies
Man on Record
Marquette
New England - Early Settlers
Nicaragua
Old Iron Sides
Panama Canal Zone
Pioneers on to the Pacific
Railroads and National Defense
The Growth of Our Nation
Series on Asia
Spanish Missions of the Old Southwest
The Navajos
Transportation
Tunyo of Taos
What is a Map

Adventures in Reading
Controlled Reading Guides
Food We Eat
Growing Through Reading
Health and Growth Series
Clothes We Wear
Elements of Art
Fundamentals of Reading
Health Against TB
Homes We Live In

Individuals Change
Keeping Ourselves Healthy
New Mexico Education
Puppet Heads and Hands
Safety on the Play Ground
Teachers' Film Strips
What We Have Learned
The Story of Our Holidays
Jane's Teeth
Manners Make a Difference
Our Manners Series
Safety at Home
Safety To and From School
Train Trip by Tom
The Meaning of Christmas

TAPE RECORDINGS

Adventures in Music
Around, Above, Below
Animals and the Things We Use
Cochise: Apache, Warrior, and Statesman
Electricity Begins to Work
The Enemy Whose Bite Was Death
From Top to Toe
Hand in Hand Through Indian Land
Let's Find Out What Time It Is
Lou Gehrig - Boy ofthe Sand Lot
Nature Study Series
Prairie School
Randy's Dream
Rumplestiltskin
Ten Little Candles
The Middle Colonies
The Tasks of the Digestive System
The Carnival of Fun
The Old Gray Bear
The Story of Blood
Vulpes, The Red Fox
What Do You Believe?
What Will They Think Of Next
At the Airport
Atoms for Peace
A Trip to Navajo Land
Boy of the Pyramids
David's Hundred Dollars
The Emperor's New Clothes
Even Steven
The Fisherman and His Wife
Fun With Writing
Flight Into the Future
How Plants Help Man
Heidi
The Boy Who Couldn't Tell Time
Leaf Eaters
Mr. Tree
Mr. Watt's Tea Kettle
The New Age
Plants and the Things We Use
Road to Music
Shaken Days
The New England Story
The South Begins
Taking Care of the Teeth
The Burro's Money
The Clock
The Old Gray Goose
The Story of Paper
The Very Smallest Angel's Christmas
What Animals Give Man

RECORDS

A Child's Garden of Verses
An Adventure in Reading
An Hour of Children's Favorite Stories
Ali Baba and the Forty Thieves
An Adventure in Writing
Animal Super Market
Bambi

Black Beauty
Captain Kidd's Cow
Gift of the Forest
Jack and the Beanstalk
Johnny Appleseed
Moby Dick
Music of American Indians
New Progress Against Diabetes
On the Dark of the Moon
Pathway to Phonic Skills
Peter and the Wolf
Rootabaga Stories
The Emperor's New Clothes
The Ugly Duckling
Treasure Island
World of Literature

Copper-Toed Boots
Hunters of the Sea
In Clean Hay
Jareds Island
Middle Sister
Mocha the Donkey
New Horizons for Old Age
Nonsense Verse of Carroll & Lear
Now We Know
Oscar Wilde Fairy Tales
Pedro in Brazil
Rocket to the Moon
Steps to Mastery of Words
The Sound Way to Easy Reading
Timber-r-r
Twenty Leagues Under the Sea

SOURCES OF MATERIAL

Allied Supply Co.
2122 Central Ave., East
Albuquerque, N. M.

Associated Films, Inc.
1108 Jackson St.
Dallas 2, Texas

Association Films, Inc.
35 W. 45th St.
New York 19, N. Y.

C-B Educational Films
690 Market St.
San Francisco 4, Calif.

Children's Reading Service
1078 St. John's Place
Brooklyn 13, N. Y.

Coronet Films
65 East South Water St.
Chicago 1, Illinois

Creative Educ. Society
Mankato, Minnesota

Curriculum Materials Corp.
222 Fourth St., N. W.
Albuquerque, N. M.

Director, National Reading
Conference
Texas Christian University
Fort Worth, Texas

Eastern New Mexico Univ.
Portales, New Mexico

Encyclopedia Britannica
Films, Inc.
1414 Dragon St.
Dallas 7, Texas

Ideal Pictures, Inc.
28 East 8th St.
Chicago 5, Illinois

Information Classroom Picture
Publishers
Grand Rapids, Michigan

Eye-Gate House, Jamaica, N. Y.

KANW - FM
110 Broadway, N. E.
Albuquerque, N. M.

Magnetic Tape Duplicators
7925 Santa Monica Blvd.
West Hollywood 46, Calif.

Mr. Bruce Miller
P. O. Box 369
Riverside, California

New Mexico Dept. of Development
P. O. Box 1716
Santa Fe, N. M.

New Mexico Dept. of Education
Santa Fe, New Mexico

New Mexico School Supply
509-13 Second St., N. W.
Albuquerque, New Mexico

Popular Science Publishing Co.
Audiovisual Division
353 Fourth Avenue
New York 10, N. Y.

Science Research Associates
57 West Grand Avenue
Chicago 10, Illinois

Simmel-Meservey, Inc.
321 So. Beverly Drive
Beverly Hills, California

Society for Visual Education, Inc.
1345 West Diversey Parkway
Chicago 14, Illinois

Teaching Films Custodians
25 West 43rd Street
New York 18, N. Y.

The Farm Film Foundation
1425 "H" Street, N. W.
Washington 5, D. C.

The Jam Handy Organization
2821 East Grand Blvd.
Detroit 11, Michigan

University of Illinois
Visual Aids Services
605½ East Green Street
Champaign, Illinois

Weston Woods Studios
Weston, Connecticut

PUBLIC SCHOOL PERSONNEL

Mrs. Pita Apodaca
Mr. Nestor Aragon
Mr. Palemon Arguello
Mr. Eloy Blea
Mrs. Virginia Chacon
Mrs. Florinda Delgado
Mrs. Mae Dixon
Mr. Jose Flores
Miss Corine Gonzales
Mrs. Todd Isbell
Mrs. Josephine Lovato
Mrs. Eloy Ludi
Mr. Nick Martinez
Mr. Canuto Melendez
Mrs. Eloisa Montoya
Mrs. Lydia Ordonez
Mr. Albert Ortega
Mrs. Baudilia Quintana
Mrs. Nash Ramirez
Mrs. Thomasita Rodriguez
Mr. Mike Romero
Mrs. Felonia Sandoval
Mrs. Naomi Smith
Mr. Rogelio Valencia
Mrs. Doloritas Velasquez
Mr. Mario Barela

September 4, 1959

Board of Education
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX

Attention: Superintendent ________

Gentlemen:

May we have your cooperation in carrying out a two-year educational research project?

We know 70 per cent of the children entering the first grade in this locale are from homes where Spanish is the mother tongue. Many studies have shown that these children fail to reach the level of achievement of which they are capable, and that they fall behind their contemporaries by the third and/or fourth grade, and in many cases never realize their full potential. Three available studies of a local nature point out this fact. These recent studies were Highlands University graduate level studies made of a Las Vegas City school and the Mora school system.

Since the problem has been with us a great number of years, could it be we are not providing for the use of the newest educational media as aids to help us partially overcome this situation?

The objectives ofthe study are (1) to test the thesis that improvement in both teaching and learning of the language arts will occur when audiovisuals are used extensively; (2) to indicate the need for audiovisual materials useful in teaching this large cultural group. The possibility of producing needed material will be considered.

In essence, your school system would utilize the audiovisual equipment provided for it during one-half hour of each school day. During this period of time, the participating teacher should use the materials given her as the project director suggests. There are no restrictions on additional use of the equipment except that it must be used in the designated classroom.

We expect to record the voices of all the students in the project and need to have access to achievement test records. The test scores will be used as a group, not individually. Project personnel are available to help administer tests, if needed, and will do all the recording.

The cooperating teachers will be given an honorarium of $200 per year for their efforts and for their attending a two-day conference in September and again in July of each school year. The conferences will be held on the Highlands campus.

It would be necessary for the project classroom to be equipped with "blackout curtains" and it would be desirable to have a screen or clear wall for viewing projected materials.

Upon termination of the program, the leased equipment will be available for purchase at very reasonable prices.

Sincerely yours,

Marion Cline, Jr.
Principal Investigator
HEW Project
07-029-043.00

(This letter was sent to each superintendent in schools that participated in the project.)

November 2, 1959

XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXX

Dear _________:

For the past two months we have been in the groping stage of the language arts program and we feel that we have advanced enough to have a clearer understanding of our broad objectives and have contrived some idea of how to reach them.

You should have six pieces of audiovisual equipment at your disposal and I wonder if you would be kind enough to let me know if you do or do not have the equipment at hand. You have no doubt tried all of this special equipment by now and know whether there is any need of repair, replacement, etc.

At the current time we are in the process of amassing audiovisual materials to keep you well supplied, but we would like to have your suggestions as to what type of materials you think you should have in your particular situation to bring about better learning in our program. Although we know what use we are going to make of the CAT results, we, as yet, have not determined how these test scores may best be used as far as you are concerned. Please write us your suggestions as to how these results can best be used.

In reference to suggestions,we wonder if you might not also write us your opinion on some of the current thinking that has been going on here in the office? First we thought it would be a very good idea if we kept close contact with you through correspondence on a monthly basis, giving you some form of progress report on the project and also including some concrete ideas on how to use some of your audiovisual materials in the classroom. Secondly, we would also like to have you give us some ideas that you have used and that you think may be worth conveying to the other teachers involved. You are the individual on the firing line, so to speak, and should have more of an idea what kinds of things need to be done to push this program along a very smooth and progressive road. Therefore, we again invite any and all constructive criticism. We also want to thank you and your administrative staff for the very wonderful cooperation that has been extended to us.

Yours truly,

Marion Cline, Jr.

(A similar letter was sent to each experimental teacher)

May 10, 1960

XXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXX

Dear __________:

You may recall that plans were made at the end of the last session we held to meet during the summer to evaluate our program. That was quite some time ago; therefore, I thought I would remind you about it just in case your memory has not been in top operation, what with the end of school so close and so many things to do.

A two-day session has been planned for May 31 and June 1, 1960. It will be held at the Arts and Education Building on the Highlands University campus. The time of meeting will be from 9:00 A. M. in the morning until 4:00 P. M. in the afternoon. The meeting room will be the AV auditorium.

The purpose of the meeting will be to discuss the NDEA Language Arts Project and to attempt an evaluation of it and to make plans for next year. Any suggestions regarding the project will be greatly appreciated.

Incidentally, if you have some materials, please be sure to return them at that meeting. May I also remind you that the equipment you have on hand will remain at your school for use next year.

I hope to see all of you on May 31 at 9:00 A. M. I shall distribute the honorariums at that time.

Yours truly,

Marion Cline, Jr.

(A similar letter was mailed to each experimental teacher.)

May 30, 1961

XXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXX

Dear _________:

Your cooperation and effort in enabling the language arts research project to proceed smoothly has been greatly appreciated. Even though the school year is over, there are yet one or more things left to take care of in reference to the project.

First of all, it is necessary to hold the end-of-the-year meeting to evaluate the achievements of the project, etc. This meeting will be held on June 13, 1961 at 9:30 AM in the AV room of the A & E building on the Highlands campus.

It is most essential in terminating the project that you make a very special effort to attend the meeting since we need your comments and evaluation. Furthermore, you will want to be there to receive a little remuneration. Incidentally, if we do not have your social security number, please call or mail it in as soon as possible. I need it before you can be rewarded for your good job.

If you think about it, you might jot down a few comments and have them ready for our meeting date. Too, should you locate any materials belonging to the project, please bring them along. We may also have a final price list on the rest of the equipment.

We shall look forward to your attendance.

Yours truly,

Dr. Marion Cline, Jr.

(A similar letter was written to each experimental teacher.)

May 31, 1961

XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXX

Dear ________:

I presume you are rather glad the school year is over and that you are not being continuously loaded with materials bound for Villanueva or returned to us.

At any rate, I want to extend my sincere appreciation and gratitude for your efforts in helping the language arts research project proceed smoothly throughout the 1960-61 school year.

Hoping that you will have a fine summer, I remain

Yours truly,

Dr. Marion Cline, Jr.

(A similar letter was sent to all individuals who so kindly transported materials to the experimental schools.)

July 6, 1961

XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXX

Dear _________:

We are very sorry to have to inform you that the administration will not approve payment of an honorarium to you until after the final NDEA 07-029-043.00 report has been submitted.

Regretfully yours,

W. H. Sininger
Head, Department of Education

Marion Cline, Jr.
Principal Investigator

(A copy of this letter was sent to each experimental teacher)

BIBLIOGRAPHY

1. Ulibarri, Horacio. "The Effects of Cultural Differences in the Education of Spanish Americans." Unpublished study prepared for the University of New Mexico Research of Adjustment of Indian and Non-Indian Children in the Public Schools of New Mexico, 1958.
2. Cline, Jr., Marion. "Achievement of Bilinguals in Seventh Grade by Socio-Economic Levels." Unpublished Ed.D. dissertation, University of Southern California, 1961.
3. Garrett, Henry E. Statistics in Psychology and Education. New York: Longmans, Green & Co., 1958.
4. Tireman, L. S. Teaching Spanish Speaking Children. Albuquerque: The University of New Mexico, 1951.
5. Dale, Edgar. Audio-Visual Methods in Teaching, Revised. New York: The Dryden Press, 1959.
6. Guilford, J. P. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill Book Company, Inc., 1956.
7. Saunders, Lyle. Cultural Differences and Medical Care. New York: Russell Sage Foundation, 1954.
8. Hughes, Marie M., and Sanchez, George I. Learning a New Language. Washington, D. C.: Association for Childhood Education, International, Bul. 101, 1957-58.
9. Perrigo, Lynn I., "The Spanish Heritage in New Mexico," Historia, II (October, 1952).
10. New York City Board of Education. Puerto Rican Children. 1956.
11. California Department of Education. Teachers Guide to the Education of Spanish Speaking Children, XXI. 1952.
12. Ulibarri, Horacio. "Teacher Awareness of Socio-Cultural Differences in Multi-Cultural Classrooms." Unpublished Ed.D. dissertation, University of New Mexico, 1959.